

CITY OF YUBA CITY  
STAFF REPORT

**Date:** July 20, 2021  
**To:** Honorable Mayor & Members of the City Council  
**From:** Finance Department  
**Presentation By:** Spencer Morrison, Finance Director

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**Summary**

**Subject:** Fire Apparatus Purchase Agreement

**Recommendation:**

- A. Adopt a Resolution authorizing the City Manager to enter into a sole source agreement with Golden State Fire Apparatus to purchase two City fire apparatus, utilizing Sourcewell pricing.
- B. Authorize the City Manager to advance funds for the purchase using an interim appropriation with subsequent reimbursement from the equipment lease financing after closing following the August 17, 2021 Council Meeting.
- C. Authorize the Finance Director to appropriate \$1,906,688.33 in the Vehicle Replacement Fund, 6610-69415, for the purchases and 620-49010 for the reimbursement.

**Fiscal Impact:** Initial cost to the City is \$1,906,688.33 by July 31st, however an August 17th staff report will request authorization to lease finance a ladder truck, \$1,317,000, and a fire engine, \$769,000, fully outfitted and those proceeds will reimburse the vehicle replacement fund.

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**Purpose:**

Purchase two fire apparatus for the City.

**Background:**

City of Yuba City operates two fire apparatus that have exceeded their useful lives based on age, mileage, service hours, and industry standards and recommend replacement. Vehicle 92-11 is slated for retirement and is a 1992 Pierce Quint with a 90-foot ladder. An aerial ladder truck has a useful life expectancy of 25 years and is essential for accessing multi-story occupancies, for fire and rescue emergencies, and providing tools and equipment for complex incidents. Vehicle 92-11 is very expensive to keep in service due to frequent repairs required and the difficulty of finding replacement parts. The other vehicle, 02-20, is a 2002 Pierce type one fire engine with a 25-year useful life and will be recommended to be placed into second-out service to replace Reserve Engine 4 (95-16). Vehicle 02-20 has similar issues in regard to excess maintenance costs.

Future apparatus purchases are included in the City's Vehicle Replacement Plan, which has been consistently underfunded for General Fund vehicles. During the May 25<sup>th</sup> budget study session, staff presented the idea of leasing vehicles and using 10-year financing as a method of updating the City's rolling stock while easing the burden on the General Fund. The City has saved \$830,000 to use for a down payment and toward financing of a ladder truck and \$505,000 saved for a type 1 engine. The estimated prices for the apparatus purchases will not include \$100,000 for installation of tools and equipment required on the ladder truck to place it in service and \$80,000 for the type 1 engine.

Golden State Fire Apparatus is the authorized dealer for Pierce Manufacturing, Inc. in the Sacramento region. Staff is recommending Pierce Manufacturing, Inc. to provide training, maintenance, and operating efficiencies due to familiar and like equipment. The City has received price quotes through Sourcewell, a government purchasing consortium.

### **Analysis:**

City staff has identified suitable replacements for the two apparatus: a Pierce Manufacturing, Inc. Velocity 1500 GPM Pumper and a Pierce Manufacturing, Inc. 107' Velocity Ascendant Quint Aerial truck, both with conservative specifications to keep the prices as low as possible. Staff also reached out to long-time municipal advisors to Yuba City, NHA Advisors, LLC of San Rafael, California to assist in the bid for the most competitive financing rates available. This process is nearing completion and staff will bring a recommendation before City Council at the August 17, 2021 meeting. In the meantime, on July 7<sup>th</sup>, staff learned that Pierce Manufacturing, Inc. will be assessing a metal surcharge on all new build contracts after July 31, 2021 and a purchase order submitted before that date will allow the City to avoid an additional 1.4%-2.2% increase in price, adding approximately \$10,000-\$15,000 to the City's cost. To avoid this surcharge on a purchase we were planning to bring before City Council one month later, staff is recommending committing General Fund vehicle replacement dollars to this purchase by July 31, 2021 to avoid the surcharge with a plan in place to reimburse the fund with the proceeds of lease financing soon after the August 17, 2021 meeting.

The City will receive additional discounts of \$90,000 for utilizing Sourcewell, a government purchasing consortium, and \$69,000 for purchasing the apparatus in full by July 31<sup>st</sup>. The City is currently earning 22 basis points (annualized) in the Local Agency Investment Fund (LAIF) and would be losing and estimated \$12.00 for every day (\$360 each month) the \$1.9 million is not invested in order to save \$69,000 as mentioned above.

### **Fiscal Impact:**

Initial cost to the City is \$1,906,688.33 by July 31<sup>st</sup>, however an August 17<sup>th</sup> staff report will request authorization to lease finance a ladder truck, \$1,317,000, and a fire engine, \$769,000, fully outfitted and those proceeds will reimburse the vehicle replacement fund.

### **Alternatives:**

City Council may choose to not authorize such an agreement and direct staff to wait for the lease financing to occur before purchasing.

### **Recommendation:**

A. Adopt a resolution authorizing the City Manager to enter into a sole source agreement with Golden State Fire Apparatus to purchase two City fire apparatus.

B. Authorize the City Manager to advance funds for the purchase using an interim appropriation and then be reimbursed from the equipment lease financing after closing following the August 17, 2021 Council Meeting.

C. Authorize the Finance Director to appropriate \$1,906,688.33 in the Vehicle Replacement Fund, 6610-69415, for the purchases and 620-49010 for the reimbursement.

Attachments:

1. Resolution
2. Purchase proposal

Prepared By:

*/s/ Spencer Morrison*

Spencer Morrison  
Finance Director

Submitted By:

*/s/ Dave Vaughn*

Dave Vaughn  
City Manager

Reviewed By:

City Attorney

[SLC by email](#)

# ATTACHMENT 1

**RESOLUTION NO. \_\_\_\_**

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF YUBA CITY  
TO AUTHORIZE THE CITY MANAGER TO CONTRACT WITH GOLDEN  
STATE FIRE APPARATUS TO PURCHASE TWO FIRE APPARATUS AND  
AUTHORIZE THE FINANCE DIRECTOR TO APPROPRIATE THE FUNDS**

WHEREAS, the City of Yuba City (the "City") intends to acquire vehicles to be used by the Fire Department (the "Project"); and

WHEREAS, Sourcewell has competitively solicited contracts for fire apparatus vehicles, and selected Golden State Fire Apparatus after assessing a variety of factors including pricing, and products and services offered; and

WHEREAS, Yuba City is a member of Sourcewell, and desires to take advantage of its purchasing process; and

WHEREAS, the negotiated prices for equipment are reasonable and on par with previous projects of a similar size undertaken by other public agencies; and

WHEREAS, the City currently uses specialized vehicles for the provisions of fire safety services, which are manufactured by Pierce Manufacturing, Inc., and

WHEREAS, as a result, City staff have training with Pierce Manufacturing, Inc. vehicles, operations, and maintenance; and

WHEREAS, Golden State Fire Apparatus is the sole authorized dealer for Pierce Manufacturing, Inc. in the Sacramento region; and

WHEREAS, the City has also met the requirements to sole source the equipment pursuant to City Purchasing Policies section 8-8.4.2; and

WHEREAS, the City will pay certain Capital Expenditures (the "Expenditures") in connection with the Project prior to the issuance of one or more series of tax-exempt obligations in the expected approximate principal amount of \$2.1 million (the "Indebtedness") for the purpose of financing costs associated with the Project; and

WHEREAS, the City reasonably expects that certain of the proceeds of the Indebtedness will be used to reimburse the City for the Expenditures; and

WHEREAS, Section 1.150-2 of the Treasury Regulations requires the City to declare its reasonable official intent to be reimbursed for prior Capital Expenditures made for the Project with proceeds of a subsequent borrowing.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Yuba City as follows:

1. The City finds and determines that the foregoing recitals are true and correct and incorporates them by reference.

2. The City Council finds that the fire apparatus has been competitively solicited, and negotiated prices for equipment are reasonable and on par with previous projects of a similar size undertaken by other public agencies. In the alternative, the City Council finds that a sole source award is appropriate on grounds including that Golden State Fire Apparatus is the sole authorized distributor of Pierce Manufacturing, Inc. in the region, the equipment will be more reasonably likely to integrate into the City's existing operations, maintenance, and training systems, and that the proposed negotiated prices for the equipment are reasonable and on par with previous projects of a similar size undertaken by other public agencies. As such, the City Council finds that it is in the best interest of the City to make a sole source award to Pierce Golden State Fire Apparatus.

3. The City Council hereby authorizes the purchase of a Pierce Manufacturing, Inc. Velocity 1500 GPM Pumper and a Pierce Manufacturing, Inc. 107' velocity Ascendant Quint Aerial truck for the Project, or equivalent, in an amount not to exceed \$1,906,688.33. The City Council further authorizes the City Manager to enter into an agreement with Golden State Fire Apparatus, Inc., or related business entity, for the same consistent with the terms of this Resolution and subject to approval of the agreement as to legal form by the City Attorney.

4. This declaration is made for purposes of also establishing compliance with the requirements of Section 1.150-2 of the Treasury Regulations, and does not bind the City to make any expenditure, incur any indebtedness, or proceed with the Project.

5. The City declares its official intent to use proceeds of the Indebtedness to reimburse itself for Expenditures made on or after the date which is no more than 60 days prior to the date of adoption of this Resolution.

6. The City will make a reimbursement allocation, which is a written allocation by the City that evidences the City's use of proceeds of the Indebtedness to reimburse itself for an Expenditure, no later than eighteen (18) months after the later of the date on which the expenditure is paid or the Project is placed in service or abandoned, but in no event more than three years after the date on which the Expenditure is paid.

7. The City recognizes that exceptions are also available under the Treasury Regulations for certain "preliminary expenditures," costs of issuance, certain de minimis amounts, expenditures by "small issuers" (based on the year of issuance and not the year of expenditure) and expenditures for construction projects of at least five (5) years.

8. This Resolution shall immediately take effect upon its adoption.

The foregoing Resolution was duly and regularly introduced, passed, and adopted by the City Council of the City of Yuba City at a regular meeting thereof held on the 20<sup>th</sup> day of July, 2021.

AYES:

NOES:

ABSENT:

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Marc Boomgaarden, Mayor

ATTEST:

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Ciara Wakefield, Deputy City Clerk

APPROVED AS TO FORM  
COUNSEL FOR YUBA CITY:

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Shannon Chaffin, City Attorney  
Aleshire & Wynder, LLP

# ATTACHMENT 2





# GOLDEN STATE

FIRE APPARATUS

## PROPOSAL PREPARED FOR

**Yuba City Fire Department**  
Pierce Manufacturing, Inc.  
(1) Velocity 1500 GPM Pumper  
- Sourcewell 022818, ID #789  
(1) 107' Velocity Quint Aerial  
- Sourcewell 022818, ID #772  
July 9, 2021

## SALES CONSULTANT

*Brad Hansen*  
**Golden State Fire Apparatus, Inc.**  
7400 Reese Road  
Sacramento, CA 95828  
916.869.6072 Cell  
[brad@goldenstatefire.com](mailto:brad@goldenstatefire.com)

## PARTS, SERVICE & SUPPORT

**Golden State Emergency Vehicle Service, Inc.**  
7400 Reese Road  
Sacramento, CA 95828  
916.330.1638 Office  
[parts@goldenstatefire.com](mailto:parts@goldenstatefire.com)

**PROPOSAL PREPARED FOR:**

**Yuba City Fire Department**  
824 Clark Avenue  
Yuba City, CA 95991

|                          |                      |
|--------------------------|----------------------|
| <b>Submitted Date:</b>   | July 9, 2021         |
| <b>Proposal Number:</b>  | 10709-21             |
| <b>Expiration Date:</b>  | <b>July 31, 2021</b> |
| <b>Sales Consultant:</b> | Brad Hansen          |

We hereby propose and agree to furnish, after your acceptance of this proposal and the proper execution by the YUBA CITY FIRE DEPARTMENT, hereinafter called "Customer" and an officer of Golden State Fire Apparatus, Inc., hereinafter called "GSFA", the following fire apparatus and equipment, hereinafter called "Product":

| #                     | Description   | Unit Price          |
|-----------------------|---|---------------------|
| A                     | One (1) Pierce Manufacturing, Inc. Velocity 1500 GPM Pumper             | 703,073.20          |
| B                     | Discount for Sourcewell contract 022818, ID #789 (Pumper)               | (36,004.00)         |
| C                     | Discount For 100% Pre-Payment at Time of Order (Pumper)                 | (24,503.44)         |
| D                     | One (1) Pierce Manufacturing, Inc. 107' Velocity Ascendant Quint Aerial | 1,232,753.60        |
| E                     | Discount for Sourcewell contract 022818, ID #772 (Aerial)               | (54,077.00)         |
| F                     | Discount For 100% Pre-Payment at Time of Order (Aerial)                 | (44,402.89)         |
| <b>SUBTOTAL</b>       |   | <b>1,776,839.47</b> |
| 7.25% State Sales Tax |   | 128,820.86          |
| California Tire Fee   |   | 28.00               |
| <b>GRAND TOTAL</b>    |   | <b>1,905,688.33</b> |



**PROPOSAL SUMMARY**

This proposal includes the following items in accordance with the specifications hereto attached:

- Fire apparatus and equipment
- 100% performance bond
- Factory final inspection trip
- Pre-delivery inspection/services by GSFA
- Delivery to GSFA service center in Sacramento
- Final delivery from service center to Customer
- Demonstration and familiarization of the Product
- California Tire Fee

**PRODUCT COMPLETION**

Product shall be built in accordance with the specifications hereto attached, delays due to acts of God, strikes, war, or intentional conflict, failures to obtain chassis, materials, unusual weather conditions or other causes beyond GSFA's control not preventing, within approximately **410 to 440 CALENDAR DAYS** after receipt of this order and the acceptance thereof at our Sacramento, California office. Within thirty (30) calendar days after receipt of this order and acceptance thereof, GSFA shall submit to Customer a production schedule including tentative pre-construction conference, final inspection and final delivery dates.

**DELIVERY LOCATION**

Product shall be shipped in accordance with the specifications hereto attached and be delivered to you at **YUBA CITY, CALIFORNIA**. Proof of insurance must be demonstrated by the Customer to GSFA prior to transferring of the Product(s).

**ACCEPTING THIS PROPOSAL**

In the event Customer wishes to purchase the Product described in this Proposal and the attached specifications, then, prior to the expiration date listed on page 2 of this Proposal, Customer shall sign and return this Proposal. Thereafter, GSFA and Customer will endeavor to enter into a purchase agreement incorporating this Proposal and including additional terms (a "Purchase Agreement"). If Customer returns a signed copy of this Proposal alone, GSFA will send Customer its form of Purchase Agreement for Customer's review and signature. **If Customer desires to use its standard form of purchase order as the Purchase Agreement, then Customer should return a signed copy of this Proposal along with a copy of such purchase order. All purchase orders shall be made out to GSFA.** GSFA will review such purchase order and contact the Customer regarding any required revisions. Only upon a full execution of a Purchase Agreement shall GSFA and Customer be obligated to purchase and sell the Product set forth in this Proposal.

**TERMS AND CONDITIONS**

The following Terms and Conditions are hereby made part of this Proposal:

**1. Payment Terms, 100% Pre-Payment at Time of Order –** Customer shall pay the amount listed on page one of this Proposal, which includes: (i) the total price for the Product (the "Purchase Price"), (ii) the estimated state sales tax on the Product, and (iii) the California tire fee (together with the Purchase Price and estimated state sales tax, the "Grand Total") within fifteen (15) calendar days from the date on which the Purchase Agreement is fully executed. The proposed delivery timeframe for the Product, which is outlined on page one of this Proposal, shall not begin until full payment of the Grand Total is received. In the event Customer does not pay GSFA the Grand Total in the timeframe set forth in this Section 1, GSFA may, in its sole discretion, cancel the Purchase Agreement entered into between the parties.

**2. Multiple Unit Purchase –** If the Purchase Price includes pricing for multiple units, the price stated on this Proposal shall only be valid if the quantity of Products being proposed are purchased at the same time, pursuant to the same Purchase Agreement.

**3. Stock / Demo Units –** If applicable, any stock/demo units, including those identified by this Proposal, are available for sale on an as-is, first-come and first served-basis. Regardless of this Proposal, the first Customer to enter into a Purchase Agreement identifying any such stock/demo unites shall obtain said units.

**4. Order Changes –** The Customer may request that GSFA incorporate a change to the Product or the Specifications for the Product by delivering a written change order to GSFA, which shall include a description of the proposed change sufficient to permit GSFA to evaluate the feasibility of such change (a "Change Order"). GSFA will provide Customer a written response (a "Response") stating (i) whether GSFA will accommodate such Change Order (which GSFA may decide in its sole and absolute discretion) and (ii) the terms of the modification to the order, including any increase or decrease in the Purchase Price resulting from such Change Order, and any effect on production scheduling or Delivery resulting from such Change Order. Customer shall have seven (7) days after receipt of the Response to notify GSFA as to whether Customer desires to make the changes GSFA has approved in the Response. In the event Customer counter-signs GSFA's Response, Customer shall pay the increase (or be refunded the decrease) in the Purchase Price prior to final delivery to Customer location.

**5. Force Majeure –** GSFA shall not be responsible nor deemed to be in default on account of delays in performance due to causes which are beyond GSFA's and manufacturer's control and which make GSFA's performance impracticable, including but not limited to wars, insurrections, strikes, riots, fires, storms, floods, other acts of nature, explosions, earthquakes, accidents, any act of government, delays in transportation, inability to obtain necessary labor supplies or manufacturing facilities, allocation regulations or orders affecting materials, equipment, facilities or completed products, failure to obtain any required license or certificates, acts of God or the public enemy or terrorism, failure of transportation, epidemics, quarantine restrictions, failure of vendors (due to causes similar to those within the scope of this clause) to perform their contracts or labor troubles causing cessation, slowdown, or interruption of work.


**6. Cancellation/Termination –** In the event Customer and GSFA enter into a Purchase Agreement and Customer thereafter cancels or terminates the Purchase Agreement, GSFA will charge a cancellation fee as follows: (a) 10% of the Purchase Price after order is accepted and entered by GSFA; (b) 20% of the Purchase Price after completion of the pre-construction phase of the order process; and (c) 50% of the Purchase Price after the requisition of any materials or commencement of any manufacturing or assembly of the Product by either GSFA or the manufacturer of the Product. The tier of cancellation fee applicable to any cancellation shall be in the sole and absolute discretion of GSFA.

**7. State Sales Tax –** Customer shall be responsible for the cost of state sales tax associated with, or attributable to the Product. The taxes owed by Customer for the Product is subject to adjustment for the applicable state sales tax rate in effect when the Product is delivered to the Customer. Therefore, the sales tax will be increased or decreased at the time of delivery if a change in the sales tax rate has occurred, in which case Customer shall pay GSFA (or be refunded by GSFA) the applicable change in sales tax.

**8. Proposal Expiration –** After the Expiration Date shown on page one of this Proposal, Customer shall require GSFA's written consent to accept this Proposal.

**9. Governing Law –** This Proposal is to be governed by and under the laws of the state of California.

Thank you for providing Golden State Fire Apparatus, Inc. with the opportunity to provide this proposal. If you have any questions regarding the options presented or need additional options, please contact me.

Sincerely,  


Brad Hansen  
Golden State Fire Apparatus, Inc.

I, \_\_\_\_\_ authorized representative of **YUBA CITY FIRE DEPARTMENT** agrees to purchase the proposed Product(s) and agree to the terms and conditions of this proposal and the specifications hereto attached.

SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_



## **PUMPER INFORMATION**



# Proposal Details Report

7/9/2021

**Customer:** City Of Yuba City  
**Representative** Hansen, Brad  
**Requirements Manager:**  
**Description:** Yuba City Velocity Engine 2020  
**Chassis:** Velocity Chassis (Big Block), 2010  
**Body:** Pumper, Medium, Galvanneal, 2nd Gen

**Bid Number:** 621  
**Job Number:**  
**Organization:** Golden State Fire Apparatus, Inc

| OptionCode | Type | Option | ProposalText |
|------------|------|--------|--------------|
|------------|------|--------|--------------|

|         |  |                       |   |
|---------|--|-----------------------|---|
| 0766611 |  | Boiler Plates, Pumper | Golden State Fire Apparatus is pleased to submit a proposal to Yuba City Fire Department for a <b>Pierce® triple combination pumper</b> per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications. |
|---------|--|-----------------------|---|

Golden State Fire Apparatus is pleased to submit a proposal to Yuba City Fire Department for a **Pierce® triple combination pumper** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment. Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.

### GENERAL DESIGN AND CONSTRUCTION

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

### QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs and American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal. In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least twenty (20) fire departments/municipalities that have purchased vehicles for a second time is provided.

### DELIVERY

The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

### MANUAL AND SERVICE INFORMATION

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

### SAFETY VIDEO

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

### PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The

transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

#### **SERVICE AND WARRANTY SUPPORT**

Pierce dealership support will be provided by Golden State Emergency Vehicle Services by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within one hundred fifty (150) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

#### **LIABILITY**

**The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.**

#### **INSURANCE PROVIDED BY BIDDER**

##### **COMMERCIAL GENERAL LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Personal and Advertising Injury \$1,000,000**

**General Aggregate \$2,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.**

##### **COMMERCIAL AUTOMOBILE LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:**

**Each Accident Combined Single Limit: \$1,000,000**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:**

**Aggregate: \$3,000,000**

**Each Occurrence: \$3,000,000**

**The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.**

**The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.**

**Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.**

**All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.**

**Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.**

#### **INSURANCE PROVIDED BY MANUFACTURER**

##### **PRODUCT LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:**

Each Occurrence: \$25,000,000

Aggregate: \$25,000,000

The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.

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| 0661794 | Single Source Compliance  | <b>SINGLE SOURCE MANUFACTURER</b><br>Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.   |
| 0584456 | Manufacture Location, Appleton, Wisconsin                       | Your apparatus will be manufactured in Appleton, Wisconsin.   |
| 0584452 | RFP Location: Appleton, Wisconsin                               |   |
| 0588609 | Vehicle Destination, US   |   |
| 0520877 | Comparison Report Required                                      | <b>COMPARISON REPORT</b><br>A report will be provided to allow the Sales Representative to compare the options to a previous job. The report will be provided for job pump panel layout to match job #27621 as much as possible (We will furnish photos of the previous pump panel).  |
| 0670275 | Unit to be Similar in some Aspects, Excluding Pump Panel        | <b>SPECIAL INSTRUCTIONS</b><br>The apparatus being proposed will be designed and built to match the 31902. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.  |
| 0610784 | Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions | <b>NFPA 2016 STANDARDS</b><br>This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.<br>Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.<br>All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.<br>A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.<br>The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.<br>An official of the company will designate, in writing, who is qualified to witness and certify test results. |
| 0533347 | Pumper/Pumper with Aerial Device Fire Apparatus                 |   |
| 0588611 | Vehicle Certification, Pumper                                   |   |

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| 0661778 | Agency, Apparatus Certification, Pumper/Tanker, U.L.                | <p><b>NFPA COMPLIANCE</b><br/>Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".</p> <p><b>VEHICLE INSPECTION PROGRAM CERTIFICATION</b><br/>To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.<br/>A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.</p> <p><b>PUMP TEST</b><br/>Underwriters Laboratory (UL) will test, approved, and certify the pump. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the pump manufacturer's record of pump construction details will be forwarded to the Fire Department.</p> <p><b>GENERATOR TEST</b><br/>If the unit has a generator, Underwriters Laboratory (UL) will test, approved, and certify the generator. The test results will be provided to the Fire Department at the time of delivery.</p> <p><b>BREATHING AIR TEST</b><br/>If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and have the sample certified that the air quality meets the requirements of NFPA 1989, <i>Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection</i>.</p>  |
| 0000000 | STF GSFA, Inspection Trip(s) - Customer Booking & Paying Own Travel | <p><b>INSPECTION TRIP(S)</b><br/>The Fire Department will provide two (2) factory inspection trip(s) for three (3) Yuba City customer representative(s). The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer.<br/>Costs for airfare, lodging, meals and ground transportation while at the manufacturers location will be the responsibility of the Fire Department.<br/>Costs such as Customer ground transportation in California, Customer airport parking, Customer luggage fees and Customer incidentals while traveling to the factory will be the responsibility of the Customer.</p>   |
| 0092138 | Highly Customized Product (HCP)                                     | <p><b>PRODUCT CHANGES AND IMPROVEMENTS</b><br/>Our components and processes, as described in this proposal document, are as accurate as known at the time of bid submission, but are subject to change for the purpose of product or process improvements, or changes in industry standards providing the change does not affect the meaning or definition of the bid specifications.</p>  |
| 0536644 | Customer Service Website  | <p><b>AFTERMARKET SUPPORT WEBSITE</b><br/>Pierceparts.com will provide <u>Pierce authorized dealer</u> access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the Pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.<br/>Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service.<br/>The website will consist of the following screens at the dealer level:</p> <p><b>My Fleet Screen</b><br/>The My Fleet screen will provide access to truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.</p> <p><b>Parts Screens</b><br/>The Parts screens will provide parts look-up capability of Pierce Manufacturing sourced items, with the aid of digital photographs, part drawings and assembly drawings. The parts search application will permit the searching of parts by item description or function group (major system category). The parts application will provide the ability to submit electronically a parts order, parts quote, or parts return request directly to Pierce Manufacturing for processing.</p> <p><b>Warranty Screen</b><br/>The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement.</p> <p><b>My Reports Screens</b><br/>The My Reports screens will provide access to multiple dealer reports to allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.</p> <p><b>Technical Support Screens</b><br/>The Technical Support screens will provide access to all currently published Operation and Maintenance and Service Publications. Access to Pierce Manufacturing Service Bulletins and Work Instructions, containing information on current service topics and recommendations will be provided.</p> <p><b>Training</b><br/>The Training screens will provide access to upcoming training classes offered by Pierce Manufacturing along with interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components will be provided. Access to training manuals used in Pierce Manufacturing training classes will be provided.</p> <p><b>About Pierce</b><br/>Access to customer service articles, corporate news, quarterly newsletters, and key contacts within the Customer Service Department will be provided. The current Customer Service Policy and Procedure Manual, detailing the operation of the Customer Service group will also be accessible.</p> |



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| 0766110 | Consortium, Sourcewell  |  |
| 0537375 | Unit of Measure, US Gallons   |  |
| 0030006 | Bid Bond Not Requested  | <p><b>BID BOND NOT REQUESTED</b><br/> A bid bond will not be included. If requested, the following will apply:<br/> All bidders will provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.<br/> Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.</p> |
| 0582800 | Performance Bond, 100% with 25% Warranty Bond, 1 Yr, and Payment Bond | <p><b>PERFORMANCE BOND, 1 YEAR</b><br/> The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.<br/> Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.</p>   |
| 0000007 | Approval Drawing  | <p><b>APPROVAL DRAWING</b><br/> A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.<br/> A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.</p>   |
| 0002928 | Electrical Diagrams   | <p><b>ELECTRICAL WIRING DIAGRAMS</b><br/> Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.</p>  |
| 0564202 | Velocity Chassis (Big Block), 2010                                    | <p><b>VELOCITY CHASSIS</b><br/> The Pierce Velocity® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required. The chassis will be the manufacturer's first line tilt cab.</p>  |
| 0021007 | Maximum Overall Height  | <p><b>MAXIMUM OVERALL HEIGHT</b><br/> The maximum overall height of the apparatus will be 124.00" (10'-4.00").</p>   |
| 0523786 | Angle of Approach   | <p><b>ANGLE OF APPROACH</b><br/> The angle of approach will be a minimum of 13 degrees. This will be effective with the truck in a loaded state.</p>   |
| 0523787 | Angle of Departure  | <p><b>ANGLE OF DEPARTURE</b><br/> The angle of departure will be a minimum of 12 degrees. This will be effective with the truck in a loaded state.</p>   |

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| 0000110 | Wheelbase   | <b>WHEELBASE</b><br>The wheelbase of the vehicle will be 191.50" .   |
| 0000070 | GVW Rating  | <b>GVW RATING</b><br>The gross vehicle weight rating will be 47,800 pounds.  |
| 0000203 | Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel/DCF                           | <b>FRAME</b><br>The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges. |
| 0020018 | Frame Liner Not Req'd   |  |
| 0530444 | Axle, Front, Meritor FL-943, 20,800#, w/assist, Qtm/AXT/Vel/Imp                 | <b>FRONT AXLE</b><br>The front axle will be a reverse "I" beam type with inclined king pins. It will be a Meritor™ axle, Model FL-943, with a rated capacity of 20,800 lb.<br>The turning angle will be 39 degrees to the right and 45 degrees to the left.<br>A viewing window will be provided on each side of the axle for checking the oil level.<br><b>STEERING CRAMP ANGLE CERTIFICATION</b><br>The fire apparatus manufacturer will provide, at time of bid, a letter from an independent third party testing agency stating they approve the steering cramp angle.<br>Highly specialized options may limit the cramp.  |
| 0199681 | Suspension, Front, Standens, Taper Leaf, 21,500 lb, Imp/Vel/Enf                 | <b>FRONT SUSPENSION</b><br>The front springs will be a Standens, three (3)-leaf, taper leaf design, 54.00" long x 4.00" wide, with a ground rating of 21,500 lb.<br>The two (2) top leaves will wrap the forward spring hanger pin. The top leaf will also wrap the rear spring hanger pin. Both the front and rear eyes will be Berlin style wraps that will place the eyes in the horizontal plane within the main leaf. This will reduce bending stress from acceleration and braking.<br>A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.  |
| 0000319 | Shock Absorbers on Front Axle, Qtm/AXT/Imp/Vel                                  | <b>SHOCK ABSORBERS</b><br>To provide a smoother ride, the front axle will be furnished with Monroe® Gas-Magnum® 65 heavy-duty telescoping shock absorbers.   |
| 0000322 | Oil Seals, Front Axle   | <b>FRONT OIL SEALS</b><br>Oil seals with viewing window will be provided on the front axle.  |
| 0899288 | Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply, Fire Service Speed | <b>FRONT TIRES</b><br>Front tires will be Goodyear 425/65R22.50 radials, 20 ply Armor MAX MSA, rated for 22,800 lb maximum axle load and 75 mph maximum speed.   |
| 0019611 | Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot                      | The tires will be mounted on Alcoa 22.50" x 12.25" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.   |
| 0530465 | Axle, Rear, Meritor RS25-160, 27,000 lb, Imp/Vel/Dash CF                        | <b>REAR AXLE</b><br>The rear axle will be a Meritor™, Model RS-25-160, with a capacity of 27,000 lb.   |
| 0600067 | SP Top Speed of Vehicle, Geared For 70, Speed Limited To 68 MPH                 | <b>TOP SPEED OF VEHICLE</b><br>A rear axle ratio will be furnished to allow the vehicle to reach an approximate top speed of 70 mph. The top speed will be electronically limited to 68 mph.   |

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| 0122075 | Suspen, Rear, Standens, Spring, 27,000 lb, Imp/Vel/Dash CF              | <b>REAR SUSPENSION</b><br>The rear suspension will be Standens, semi-elliptical, 3.00" wide x 53.00" long, 12-leaf pack with a ground rating of 27,000 lb. The spring hangers will be castings.<br>The two (2) top leaves will wrap the forward spring hanger pin, and the rear of the spring will be a slipper style end that will ride in a rear slipper hanger. To reduce bending stress due to acceleration and braking, the front eye will be a berlin eye that will place the front spring pin in the horizontal plane within the main leaf.<br>A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.                      |
| 0000485 | Oil Seals, Rear Axle  | <b>REAR OIL SEALS</b><br>Oil seals will be provided on the rear axle(s).  |
| 0782552 | Tires, Rear, Goodyear, Endurance RSA, 12R22.50, LRH, Single             | <b>REAR TIRES</b><br>Rear tires will be four (4) Goodyear 12R22.50 radials, load range H, Endurance RSA highway tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed.  |
| 0019625 | Wheels, Rear, Alcoa, 22.50" x 8.25", Aluminum, Hub Pilot, Single        | The tires will be mounted on Alcoa 22.50" x 8.25" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.  |
| 0568081 | Tire Balancing, Counteract Beads  | <b>TIRE BALANCE</b><br>All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.   |
| 0620570 | Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Single Axle | <b>TIRE PRESSURE MANAGEMENT</b><br>There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of six (6) tires.<br>The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.<br>Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.                                     |
| 0002045 | Mud Flap, Front and Rear, Pierce Logo                                   | <b>MUD FLAPS</b><br>Mud flaps with a Pierce logo will be installed behind the front and rear wheels.  |
| 0602478 | Chocks, Wheel, Pumper, NFPA, Provided by Fire Department, NFPA 2016     | <b>WHEEL CHOCKS PROVIDED BY FIRE DEPARTMENT</b><br>NFPA 1901, 2016 edition, section 5.9.4 requires two (2) or more wheel chocks mounted in readily accessible locations, that together will hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released.<br>The wheel chocks are not on the apparatus as manufactured. The fire department will provide and install these wheel chocks.  |
| 0544690 | Mounting Brackets, Chocks, Provided by Fire Department                  | <b>WHEEL CHOCK BRACKETS PROVIDED BY FIRE DEPARTMENT</b><br>The wheel chock brackets are not on the apparatus as manufactured. The fire department will provide and install the wheel chock brackets.  |
| 0010670 | ABS Wabco Brake System, Single rear axle                                | <b>ANTI-LOCK BRAKE SYSTEM</b><br>The vehicle will be equipped with a Meritor WABCO 4S4M, anti-lock braking system. The ABS will provide a 4-channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control. |
| 0508676 | Brakes, Meritor, EX225, 17", Disc Plus, Front                           | <b>BRAKES</b><br>The service brake system will be full air type by Meritor™.<br>Front brakes will be Model EX225 Disc Plus, disc type with automatic pad wear adjustment and 17.00" ventilated rotors for improved stopping distance.   |
| 0000730 | Brakes, Meritor, Cam, Rear, 16.50 x 7.00"                               | The rear brakes will be Meritor™ 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields will be provided.   |

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| 0058463 | Air Compressor, Brake, Bendix 15.8 CFM                          | <b>AIR COMPRESSOR, BRAKE SYSTEM</b><br>The air compressor will be a Bendix®, Model BA-921, with 15.80 cubic feet per minute output at 1,250 rpm.  |
| 0000785 | Brake Reservoirs, Three   | <b>BRAKE SYSTEM</b><br>The brake system will include:<br>Bendix® dual brake treadle valve<br>Heated automatic moisture ejector on air dryer<br>Total air system capacity of 4,362 cubic inches<br>Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi<br>Spring set parking brake system<br>Parking brake operated by a push-pull style control valve<br>A parking "brake on" indicator light on instrument panel<br>Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi<br>A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)<br>1/4 turn drain valve on each air tank<br>The air tank will be primed and painted to meet a minimum 750 hour salt spray test.<br>To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets. |
| 0568012 | Air Dryer, Wabco System Saver 1200, Heater, 2010                | <b>BRAKE SYSTEM AIR DRYER</b><br>The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.  |
| 0000790 | Brake Lines, Nylon  | <b>BRAKE LINES</b><br>Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.  |
| 0000854 | Air Inlet, w/Disconnect Coupling                                | <b>AIR INLET</b><br>One (1) air inlet with 3D series male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located forward in the driver side lower step well of cab. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female fitting will also be provided with the loose equipment.   |
| 0610850 | Engine, DDC DD13, 470 hp, 1650 lb-ft, W/OBD, EPA 2016, Velocity | <b>ENGINE</b><br>The chassis will be powered by an electronically controlled engine as described below:<br>Make:<br>Detroit™<br>Model:<br>DD13®<br>Power:<br>470 hp at 1625 rpm<br>Torque:<br>1650 lb-ft at 1075 rpm<br>Governed Speed:<br>Full Load - 1900 rpm Road/2080 rpm Parked PTO<br>Emissions Certification:<br>EPA 2016 (GHG17)<br>Fuel:<br>Diesel<br>Cylinders:<br>Six (6)<br>Displacement:<br>781 cubic inches (12.8L)<br>Starter:<br>Delco Remy 39MT™<br>Fuel Filters:<br>Dual cartridge style with check valve, water separator, and water in fuel sensor<br>The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.  |
| 0018625 | SP High Idle w/Electronic Engine, Pre-set @1000 RPM, Custom     | <b>HIGH IDLE</b><br>A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a 1000 engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.<br>The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK To Engage High Idle".   |

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| 0590300 | Engine Brake, Jacobs Compression Brake, DD13                                    | <p><b>ENGINE BRAKE</b></p> <p>A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system will automatically disengage the auxiliary braking device when required.</p>  |
| 0684163 | Clutch, Fan, Air Actuated, Horton Drive Master, Constant On Sw, Indicator       | <p><b>CLUTCH FAN</b></p> <p>A Horton clutch fan will be provided. Clutch fan will have an on/off switch with indicator light in the cab to engage the fan in a "constant on" mode.</p> <p>Switch will be located Cab Switch panel TBD at Pre-Construction on IP Layout.</p>  |
| 0037145 | Heater, 1000 watt Immersion, Connect to Shoreline                               | <p><b>ENGINE HEATER</b></p> <p>A 1000 watt, 120 volt, immersion type engine heater with thermostat will be installed. The engine heater will be wired to the shoreline and be active whenever the shoreline is connected.</p>  |
| 0123135 | Air Intake, w/Ember separator, Imp/Vel  | <p><b>ENGINE AIR INTAKE</b></p> <p>An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, rotomolded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.</p>  |
| 0565965 | Exhaust System, 5", 2010 DD13, ISX engine, Horizontal, Right Side               | <p><b>EXHAUST SYSTEM</b></p> <p>The exhaust system will include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the SCR device and will be 5.00" in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p>   |
| 0683310 | Diffuser, Exhaust, Modified For Extraction, 5"x7"x5", Flush With Rub Rail, CARE | <p><b>EXHAUST MODIFICATION</b></p> <p>The exhaust pipe will be 90 degrees to the body.</p> <p>The diffuser will be reduced to 5.00" in the center to accommodate the fire department's air recovery system. The 5.00" extension pipe coming out of the end of the diffuser will be flush with the body rub rail. There will be a minimum of 4.00" clearance between the top of the 5.00" extension and the bottom of the body.</p> <p>There will be a minimum of 2.50" from the exhaust pipe to the under side of the body heat shield. The last 7.00" of the exhaust will be free of hangers and/or clamps.</p>   |
| 0787999 | Radiator, Impel/Velocity  | <p><b>RADIATOR</b></p> <p>The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards.</p> <p>For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers.</p> <p>The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy will be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly.</p> <p>The radiator will be compatible with commercial antifreeze solutions.</p> <p>There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators.</p> <p>The radiator assembly will include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.</p> <p>A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.</p> <p>A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.</p> |
| 0511425 | Cooling Hoses, Rubber   | <p><b>COOLANT LINES</b></p> <p>Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by the chassis manufacturer.</p> <p>Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.</p>  |

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| 0606526 | SP Radiator Coolant, Detroit Diesel Power Cool Plus, Extended Life         | <b>RADIATOR COOLANT</b><br>The radiator will be filled with Detroit Diesel® Power Cool Plus™, Extended Life, coolant.   |
| 0001125 | Fuel Tank, 65 Gallon, Left Side Fill                                       | <b>FUEL TANK</b><br>A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps. A 0.75" drain plug will be located in a low point of the tank for drainage. A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only." A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet. The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.   |
| 0001129 | Lines, Fuel  | All fuel lines will be provided as recommended by the engine manufacturer.  |
| 0692516 | DEF Tank, 4.5 Gallon, DS Fill, Rear of Axle, Common Door, Spring Flip Door | <b>DIESEL EXHAUST FLUID TANK</b><br>A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body rearward of the rear axle. A 0.50" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be provided and marked "Diesel Exhaust Fluid Only". The fill inlet will be located adjacent to the engine fuel inlet behind a common hinged, spring loaded, polished stainless steel door on the driver side of the vehicle. The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing. The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing. The stainless steel flip door for selecting between DEF fill and the diesel fill will be spring loaded to default to covering the DEF fill. |
| 0552793 | Not Required, Fuel Priming Pump  |   |
| 0552712 | Not Required, Shutoff Valve, Fuel Line                                     |   |
| 0553019 | Cooler, Engine Fuel, Imp/Vel, AXT/Qtm/Sab/DCF/SFR/Enf                      | <b>FUEL COOLER</b><br>An air to fuel cooler will be installed in the engine fuel return line.   |
| 0690880 | No Selection Required From This Category                                   |   |
| 0642582 | Trans, Allison 5th Gen, 4000 EVS P, w/Prognostics, Imp/Vel/DCF/SFR/Enf     | <b>TRANSMISSION</b><br>An Allison 5th generation, Model EVS 4000P, electronic, torque converting, automatic transmission will be provided. The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due. Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock). A transmission temperature gauge with red light and buzzer will be installed on the cab instrument panel.   |
| 0625331 | Transmission, Shifter, 6-Spd, Push Button, 4000 EVS                        | <b>TRANSMISSION SHIFTER</b><br>A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation. The transmission ratio will be:<br>1st<br>3.51 to 1.00<br>2nd<br>1.91 to 1.00<br>3rd<br>1.43 to 1.00<br>4th<br>1.00 to 1.00<br>5th<br>0.75 to 1.00<br>6th<br>0.64 to 1.00<br>R<br>4.80 to 1.00   |

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| 0684459 | Transmission Oil Cooler, Modine, External                                  | <b>TRANSMISSION COOLER</b><br>A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.   |
| 0539711 | Label, TRANSynd Transmission Fluid Only                                    | <b>TRANSMISSION FLUID LABEL</b><br>A label located on the transmission fluid fill access door will be provided. The label will read "Trans Fluid TRANSynd Only".  |
| 0535530 | Mode, Downshift, Aggressive downshift to 2nd, w/engine brake, 6 speed      | <b>DOWNSHIFT MODE (w/engine brake)</b><br>The transmission will be provided with an aggressive downshift mode. This will provide earlier transmission downshifts to 2nd gear from 6th gear, resulting in improved engine braking performance.   |
| 0027844 | Fluid, 4000 Series Trans, Allison Approved TES-295 Synthetic, IPOS, Custom | <b>TRANSMISSION FLUID</b><br>The transmission will be provided with TranSynd, or other Allison approved TES-295 heavy duty synthetic transmission fluid.  |
| 0001375 | Driveline, Spicer 1810   | <b>DRIVELINE</b><br>Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints. The shafts will be dynamically balanced before installation. A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.   |
| 0669989 | Steering, Ross TAS-85 w/tilt, Eaton Pump, w/ Cooler                        | <b>STEERING</b><br>A Ross, Model TAS-85, steering gear, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braided lines with crimped fittings. A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.   |
| 0001545 | Steering Assist Cylinder on Front Axle                                     | <b>STEERING ASSIST CYLINDER ON FRONT AXLE</b><br>To aid in the steering of the apparatus, the front axle will be equipped with a Ross power assist cylinder.  |
| 0509230 | Steering Wheel, 4 Spoke without Controls                                   | <b>STEERING WHEEL</b><br>The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.  |
| 0690274 | Logo/Emblem, on Dash   | <b>LOGO AND CUSTOMER DESIGNATION ON DASH</b><br>The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.<br>The first row of text will be: Yuba<br>The second row of text will be: City<br>The third row of text will be: Fire  |
| 0123624 | Bumper, 16" Extended, Imp/Vel  | <b>BUMPER</b><br>A one (1) piece, ten (10) gauge, 304-2B type polished stainless steel bumper, minimum of 10.00" high, will be attached to a bolted modular extension frame constructed of 50,000 psi tensile steel "C" channel mounted directly behind it to provide adequate support strength. The bumper will be extended 16.00" from front face of cab.<br><b>Gravel Pan</b><br>A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate. |
| 0784510 | SP Tray, Hose, Center, 16" Bumper, Outside Air Horns, 10" Deep, Imp/Vel    | <b>CENTER HOSE TRAY</b><br>A hose tray, constructed of aluminum, will be placed in the center of the bumper extension. Tray will be 10.00" deep.<br>The tray will have a capacity of 75' of 1.75" double jacket cotton-polyester hose.<br>Black rubber grating will be provided at the bottom of the tray. Drain holes are also provided.   |
| 0624826 | Hose Restraint, Bumper Tray, 2.00" Straps, Fasteners, Pair                 | <b>Center Hose Tray Restraint</b><br>There will be one (1) pair of hose tray restraint straps located over the center mounted tray. The restraints will be 2.00" wide black nylon straps with seat belt buckle fasteners provided. The straps will be used to secure the hose in the tray.  |

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| 0510226 | Lift & Tow Package, Imp/Vel, AXT, Dash CF                                | <p><b>LIFT AND TOW MOUNTS</b><br/> Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems.<br/> The lift and tow mounts with eyes will be painted the same color as the frame.</p>   |
| 0522573 | Tow Hooks Not Required, Due to Lift and Tow Package                      | <p><b>TOW HOOKS</b><br/> No tow hooks are to be provided. This truck will be equipped with a lift and tow package with integral tow eyes.</p>  |
| 0586937 | Lights, Fog, PIAA 2110, 15213 Halogen Bulb (Rect) , Recessed Into Bumper | <p><b>FOG LIGHTS</b><br/> Two (2) PIAA Model 2110 rectangular halogen fog lamps, with clear lenses, will be provided one (1) on each side recessed into the front bumper.<br/> The fog lamp switch will include an internal indicator. This switch will be properly identified and installed on the switch panel with in reach of the driver. The parking, tail, side marker and license plate lamps will be activated by the headlamp switch prior to the activation of these fog lights. The fog lights will be able to switch on or off independently of the low beam headlights. The front fog lights will be reset to an off position whenever the headlight switch or the vehicle ignition switch is set to the off position. The fog lights will be deactivated when the high beam headlights are activated, when the headlight switch is turned off or when the ignition switch is turned off.</p> |



The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area will also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab will be a full-tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor-to-ceiling height inside the forward cab will be no less than 60.25". The floor-to-ceiling height inside the crew cab will be no less than 62.95" in the center position and 68.75" in the outboard positions.

The crew cab will measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

#### **INTERIOR CAB INSULATION**

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

#### **FENDER LINERS**

Full-circular, aluminum, inner fender liners in the wheel wells will be provided.

#### **PANORAMIC WINDSHIELD**

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

#### **WINDSHIELD WIPERS**

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather. The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

#### **FAST SERVICE ACCESS FRONT TILT HOOD**

A full-width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood with a double-action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).

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| 0724237 | Engine Tunnel, ISL and DD13, Mech Fasteners, Impel/Velocity FR | <p><b>ENGINE TUNNEL</b><br/>To provide structural strength, the engine tunnel sidewalls will be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and 0.38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.<br/>The back of the engine tunnel will be no higher than 16.25" off the crew cab floor.<br/>The engine hood will be insulated for protection from heat and sound. Perforated foil faced insulation will be over a 1.00" thick closed cell foam affixed with pressure sensitive adhesive and further secured with mechanical fasteners. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.</p>  |
| 0677478 | Rear Wall, Exterior, Cab, Aluminum Treadplate                  | <p><b>CAB REAR WALL EXTERIOR COVERING</b><br/>The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p>   |
| 0122466 | Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel                 | <p><b>CAB LIFT</b><br/>A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure. The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended).<br/>The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab.<br/>The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.<br/>For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.</p> <p><b>Cab Lift Interlock</b><br/>The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.</p> |
| 0123176 | Grille, Bright Finished, Front of Cab, Impel/Velocity          | <p><b>GRILLE</b><br/>A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.</p>  |
| 0751883 | Scuffplate, S/S, Top, Cabinet Door (s), Each                   | <p><b>DOOR FRAME SCUFFPLATE</b><br/>There will be two (2)polished stainless steel scuffplate(s) provided for the top edge of the exterior door frame located at the left and right side cab exterior access compartments. Each scuffplate will be stainless steel with a .38" lip down.</p>  |
| 0752555 | Scuffplate, S/S, Striker Side, Cabinet Door(s), Each           | <p><b>DOOR FRAME SCUFFPLATE</b><br/>There will be two (2)polished stainless steel scuffplate(s) provided for the latch side of the door frame located at the left and right side cab exterior access compartments. Each scuffplate will be stainless steel with a .38" lip down.</p>   |
| 0002224 | Scuffplates, S/S At Cab Door Jambs, 4-Door Cab                 | <p><b>DOOR JAMB SCUFFPLATES</b><br/>All cab door jambs will be furnished with a brushed stainless steel scuffplate, mounted on the striker side of the jamb.</p>   |
| 0527032 | Trim, S/S Band, Across Cab Face, Rect Lights, Velocity         | <p><b>FRONT CAB TRIM</b><br/>A band of 22 gauge brushed stainless steel trim will be installed across the front of the cab, from door hinge to door hinge. The trim band will be centered on the head lights and applied with two (2)-sided tape. A 0.625" self adhesive trim strip will be applied around the perimeter of the trim band.<br/>There will be brushed stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.</p>  |
| 0087357 | Molding, Chrome on Side of Cab                                 | <p><b>SIDE OF CAB MOLDING</b><br/>Chrome molding will be provided on both sides of cab.</p>  |

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| 0521669 | Mirrors, Retractable, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex         | <p><b>MIRRORS</b></p> <p>A Retractable, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.</p>  |
| 0667937 | Door, Full Height, Velocity FR 4-Door Cab, Raised Roof                    | <p><b>CAB DOORS</b></p> <p>To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 76.46" high. The crew cab doors will be located on the sides of the cab and will be constructed in the same manner as the forward cab doors. The crew cab doors will measure a minimum of 37.87" wide x 85.50" high.</p> <p>The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum. The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.</p> <p>A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.</p> <p>Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.</p> <p>The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.</p> <p>A heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.</p> <p>A chrome grab handle will be provided on the inside of each cab and crew cab door.</p> <p>A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.</p> <p>The cab steps at each cab door location will be located inside the cab doors to protect the steps from weather elements.</p> |
| 0655511 | Door Panel, Brushed Stainless Steel, Impel/Velocitey 4-Door Cab           | <p><b>Door Panels</b></p> <p>The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.</p>   |
| 0667905 | Storage Pockets w/ Elastic Cover, Recessed, Overhead, Impel/Velocitey FR  | <p><b>RECESSED POCKET WITH ELASTIC COVER</b></p> <p>To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 5.63" wide x 2.00" high x 4.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available mounting locations of the overhead console.</p>   |
| 0638775 | SP Controls, Electric Windows, All Cab Doors, Instr Pnl Swtch, Imp/Vel FR | <p><b>ELECTRIC WINDOW CONTROLS</b></p> <p>Each cab entry door will be equipped with an electrically operated tempered glass window. Each window will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver and officer control panel will contain a control switch for each cab door's window. This control panel will be located within easy reach to the driver and officer located in the center instrument console. The crew cab door control panels will contain a single switch to operate the window within that door. The window switches will be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.</p>  |
| 0662776 | Electric Door Locks, Cab Doors, Conceal Switch Feature, Imp/Vel           | <p><b>ELECTRIC CAB DOOR LOCKS</b></p> <p>The front driver and passenger doors will have a door lock master switch (custom designed rotary lock knob) built into the interior door latch that will control all front and rear side exit door locks. Each rear cab door will have its own lock control. Each door will have a keyed exterior lock mechanism built into the door handle assembly.</p> <p>There will be one (1) concealed switch located TBD at Pre-Con.</p> <p>The lock system will include two (2) key FOBs that allow for keyless entry into the vehicle. The key FOB system will use code hopping technology for high security and be FCC part 15 compliant.</p>  |
| 0555485 | Steps, 4-Door Full Tilt Cab, Imp/Vel                                      | <p><b>CAB STEPS</b></p> <p>The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00" wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps.</p>   |

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| 0770194 | Handrail, Exterior, Knurled, Alum, 4-Door Cab                     | <b>CAB EXTERIOR HANDRAILS</b><br>A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.   |
| 0697689 | Steps, Stirrup, Formed w/Grip Strut, Cab & Crew Cab Doors         | <b>STIRRUP STEPS</b><br>A stirrup step will be provided below each cab and crew cab door. The steps will be designed with a grip strut tread material providing support, slip resistance, and drainage. The steps will be a bolt-on design and provide a 19.50" wide x 5.00" deep stepping surface. Each step will provide a step height of 8.00" from the top of the stirrup step to the first step of the cab.<br>The stirrup step will be lit by a white 12 volt DC LED light provided on the step.<br>The step light will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body step lights.   |
| 0509649 | Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step    | <b>STEP LIGHTS</b><br>For reduced overall maintenance costs compared to incandescent lighting, there will be four (4) white LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.<br>In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.<br>The lights will be activated when the adjacent door is opened.  |
| 0002140 | Fenders, S/S on Cab   | <b>FENDER CROWNS</b><br>Stainless steel fender crowns will be installed at the cab wheel openings.   |
| 0592071 | No Windows, Side of Crew Cab, Vel/Imp                             |  |
| 0568605 | Not Required, Interior Trim, No Cab Side Windows                  |  |
| 0012090 | Not Required, Windows, Front/Side of raised roof                  |  |
| 0509287 | Windows, Rear CC, (2) 11.25" x 18", Velocity                      | <b>WINDOWS, REAR</b><br>The rear wall of the crew cab will have two (2) windows, each being 11.25" wide x 18.00" high.   |
| 0553196 | Trim, Cab Rear Windows, Velocity                                  | <b>WINDOW INTERIOR TRIM</b><br>For improved aesthetics, the cab rear wall windows will include a vacuum formed ABS interior trim panel.  |
| 0898668 | Compt, Transverse Crew Cab, Dbl Pan, D/A Int Dr, 70/90" Vel/Imp   | <b>STORAGE COMPARTMENT</b><br>Provided under the forward facing crew cab seats will be a transverse compartment. The compartment will be divided into upper and lower sections by the cab floor. The upper section will be 9.50" wide x 13.12" high x 24.25" deep (driver side) and 22.00" deep (passenger side). The top 7.38" of the upper compartment will be full width (transverse) of the crew cab. The lower section on both sides will be 9.50" wide x 16.50" high x 20.00" deep. The compartment will extend from the bottom of the cab to top of the seat riser.<br>There will be two (2) reverse hinged double pan doors painted to match the cab exterior with a non-locking, black finish D-Ring latch, one (1) on each side of the cab with a cable for each exterior door provided as a door stop. The doors will be D/A finished on the interior.<br>The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.<br>There will be one (1) drop down door, panted to match the cab interior with two (2) non-locking lever latches with no louvers on the forward face of the seat riser.<br>The compartment interior will be painted spatter gray.<br><b>EXTERIOR ACCESS LIGHTING</b><br>Exterior compartment access lighting will consist of four (4) white LED strip lights, one (1) horizontally mounted in each lower and upper exterior compartment. |
| 0631425 | SP Trough for D-handle, Pike Pole Storage, Transverse Compartment | <b>PIKE POLE STORAGE</b><br>A rack will be provided for storage of one (1)D-handle pike pole(s). The rack will be located in the transverse section of the crew cab compartment, below the seat box. The pole will be stored on the floor of the transverse compartment.<br>The size and brand of the pike poles stored will be customer furnished 6' CTF rubbish hook with D handle..   |
| 0123686 | Drip Rail, Cab Roof, Impel/Velocity/Velocity SLT                  | <b>CAB ROOF DRIP RAIL</b><br>For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.  |

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| 0199285 | Visor, Exterior, Vel/Imp   | <p><b>EXTERIOR VISOR</b><br/>The exterior sun visor will be a painted composite to match the job color. The five (5) forward facing marker lights will be mounted to the visor.</p>  |
| 0664381 | Bracket, PAC, Ironslok, PN K5003                                       | <p><b>HALLIGAN TOOL/AXE MOUNTING BRACKET(S)</b><br/>There will be one (1) PAC Ironslok, P/N 5003, mounting bracket(s) provided. They will be located TO BE DETERMINED AT FINAL INSPECTION.</p>   |
| 0632381 | SP Bracket, PAC, Pickhead Axe Hanger/Pocket and Handlelok Kit, PN 5012 | <p><b>TOOL MOUNT(S)</b><br/>There will be one (1) PAC Pickhead axe hanger/pocket kit(s), P/N K5012, provided which includes a Handlelok, P/N 1004, tool mounting bracket. The bracket(s) will be located TO BE DETERMINED AT FINAL INSPECTION.</p>   |
| 0632382 | SP Bracket, PAC, Halligan Tool Mount and Toolok Kit, PN K5032          | <p><b>TOOL MOUNT(S)</b><br/>There will be one (1) PAC Halligan Tool Mount kit, P/N K5032, provided which includes a Toolok, P/N 1003, tool mounting bracket. The bracket(s) will be located TO BE DETERMINED AT FINAL INSPECTION.</p>  |
| 0748671 | Cab Interior, Vinyl, Velocity FR, CARE                                 | <p><b>CAB INTERIOR</b><br/>With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road.<br/>The center console will be a high impact ABS polymer and will be easily removable.<br/>The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface.<br/>To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided.<br/>To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.<br/>To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew.<br/>The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery.<br/>The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place.<br/><b>CAB INTERIOR UPHOLSTERY</b><br/>The cab interior upholstery will be 36 oz dark silver gray vinyl. All cab interior materials will meet FMVSS 302 (flammability of interior materials).</p> |
| 0667943 | Cab Interior, Paint Color, Impel/Velociry FR                           | <p><b>CAB INTERIOR PAINT</b><br/>The following metal surfaces will be painted black, vinyl textured paint:<br/>Modesty panel in front of driver<br/>Vertical surface of dash in front of the officer (not applicable for recessed dash)<br/>Glove box in front of the officer (if applicable)<br/>Power distribution in front of the officer<br/>Rear heater vent panels<br/>The remaining cab interior metal surfaces will be painted fire smoke gray, vinyl texture paint.</p>   |
| 0509532 | Floor, Rubber Padded Cab & Crew Cab, Imp/Vel, Dash CF                  | <p><b>CAB FLOOR</b><br/>The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.<br/>The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.</p>  |

**DEFROST/AIR CONDITIONING SYSTEM**

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

**Cab Defroster**

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

One (1) adjustable will be directed towards the left side cab window

One (1) adjustable will be directed towards the right side cab window

Six (6) fixed outlets will be directed at the windshield

The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

**Cab/Crew Auxiliary Heater**

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.

**Air Conditioning**

A 19.10 cubic inch compressor will be installed on the engine.

A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted to match the cab roof.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel.

The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

Four (4) will be directed towards the seating position on the left side of the cab

Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

**Climate Control**

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

**Gravity Drain Tubes**

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

0627910

Sun Visor, Vinyl/Fabric, Imp/Vel

**SUN VISORS**

There will be two (2) vinyl covered sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be a polished stainless steel bracket provided to help secure each sun visor in the stowed position.

0548173

Grab Handles, Driver and Passenger Door Post, Imp/Vel

**GRAB HANDLE**

A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.

0002526

Light, Engine Compt, All Custom Chassis

**ENGINE COMPARTMENT LIGHT**

An engine compartment light will be installed under the engine hood, of which the switch is an integral part. Light will have a .125" diameter hole in its lens to prevent moisture retention.

0122516

Fluid Check Access, Imp/Vel

**ACCESS TO ENGINE DIPSTICKS**

For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be 20.00" wide x 8.25" high and be flush with the wall of the engine tunnel. The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil.

The door will have a rubber seal for thermal and acoustic insulation. One (1) flush latch will be provided on the access door.

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| 0660939 | Map Box, 2 Bin, 30 Degree Slant         | <p><b>MAP BOX</b></p> <p>There will be a map box with two (2) bins, open at top, provided. The map box will be located shipped loose. The map box will be divided into two (2) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin will slant 30 degrees from horizontal. The map box will be constructed of .125" aluminum and will be painted to match the cab interior.</p>   |
| 0661827 | Strap, Side Release Fastener, Map Box   | <p><b>STRAP(S) FOR MAP BOX</b></p> <p>There will be two (2) strap(s) with 1.00" side release type fasteners provided for the shipped loose 1 for each map box. map box.</p>  |
| 0625348 | SP Map Box, 2 Bin, 30 Degree Slant      | <p><b>MAP BOX</b></p> <p>one (1) map boxes with two (2) bins, open at top will be provided. The map box will be located Per customer at pick up. The map box will be divided into two (2) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin will slant 30 degrees from horizontal. The map box will be constructed of .125" aluminum and will be painted to match the cab interior.</p>  |
| 0583042 | Side Roll and Frontal Impact Protection | <p><b>CAB SAFETY SYSTEM</b></p> <p>The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:</p> <p>A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.</p> <p>A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.</p> <p>A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.</p> <p>A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.</p> <p>A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.</p> <p>Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.</p> <p>Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.</p> <p>Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.</p> <p><b>FRONTAL IMPACT PROTECTION</b></p> <p>The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.</p> <p>The SRS system will deploy the following components in the event of a frontal or oblique impact event:</p> <ul style="list-style-type: none"> <li>Driver side front air bag</li> <li>Passenger side knee bolster air bag</li> <li>Air curtains mounted in the outboard bolster of outboard seat backs</li> <li>Suspension seats will be retracted to the lowest travel position</li> <li>Seat belts will be pre-tensioned to firmly hold the occupant in place</li> </ul> <p><b>SIDE ROLL PROTECTION</b></p> <p>The SRS system will provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.</p> <p>The SRS system will deploy the following components in the event of a side roll:</p> <ul style="list-style-type: none"> <li>Air curtains mounted in the outboard bolster of outboard seat backs</li> <li>Suspension seats will be retracted to the lowest travel position</li> <li>Seat belts will be pre-tensioned to firmly hold the occupant in place</li> </ul> |
| 0622619 | Seating Capacity, 4 Seats               | <p><b>SEATING CAPACITY</b></p> <p>The seating capacity in the cab will be four (4).</p>  |

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| 0697005 | Seat, Driver, Pierce PS6, Premium, Air Ride, High Back, Safety        | <b>DRIVER SEAT</b>                   | <p>A Pierce PS6® seat will be provided in the cab for the driver. The seat design will be a cam action type with air suspension. For increased convenience, the seat will include electric controls to adjust the rake (15 degrees), height (1.75" travel) and horizontal (7.00" travel) position. Electric controls will be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 20 degrees back to 45 degrees forward. Providing for maximum comfort, the seat back will be a high back style with manual lumbar adjustment lever, for lower back support, and will include minimum 7.50" deep side bolster pads for maximum support. The lumbar adjustment lever will be easily located at the lower outboard position of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control).</p> <p>The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.</p> <p>A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.</p> <p>The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p>  |
| 0696994 | Seat, Officer, Pierce PS6, Premium, Air Ride, SCBA, Safety            | <b>OFFICER SEAT</b>                  | <p>A Pierce PS6® seat will be provided in the cab for the passenger. The seat will be a cam action type with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not belted.</p> <p>The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.</p> <p>A suspension seat safety system will be included. When activated, this system will pretension the seat belt and then retract the seat to its lowest travel position.</p> <p>The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p> |
| 0002517 | Not Required, Radio Compartment                                       |                                      |   |
| 0771846 | Cabinet, Rear Facing, LS, 24 W x 28 H x 30.5 D, Lap, Ext Acc, Imp/Vel | <b>REAR FACING LEFT SIDE CABINET</b> | <p>A rear facing cabinet will be provided in the crew cab at the left side outboard position with interior and exterior access.</p> <p>The cabinet will be 24.00" wide x 28.00" high x 30.50" deep with one (1) lap door hinged on the inboard side, painted to match the cab interior with a non-locking D-ring latch. The clear door opening will be 19.00" wide x 25.50" high.</p> <p>The cabinet will include no adjustable shelves or trays in the cabinet interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will also provide exterior access with one (1) reverse hinged double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper will be provided as a door stop. The clear door opening will 19.75" wide x 25.75" high.</p> <p>The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.</p> <p>The cabinet will be constructed of smooth aluminum and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the right side of the exterior cabinet door opening. The lights will be controlled by an automatic door switch.</p>  |
| 0102783 | Not Required, Seat, Rr Facing C/C, Center                             |                                      |   |



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| 0767537 |    | Cabinet, Rear Facing, RS, 21.5 W x 28 H x 26.5 D, Lap, Ext Acc, Imp/Vel       | <b>REAR FACING RIGHT SIDE CABINET</b>   |
|         |    |   | <p>A rear facing cabinet will be provided in the crew cab at the right side outboard position. The cabinet will be 21.50" wide x 28.00" high x 26.50" deep with one (1) lap door hinged on the inboard side, painted to match the cab interior with a non-locking D-ring latch. The clear door opening will be 16.50" wide x 25.50" high.</p> <p>The cabinet will include one (1) infinitely adjustable shelf with a 1.25" up-turned lipped to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will also provide access from outside the cab with one (1) reverse hinged double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper will be provided as a door stop. The exterior clear door opening will be 16.00" wide x 25.75" high. The door will be located on the side of the cab over the wheelwell.</p> <p>The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.</p> <p>The cabinet will be constructed of smooth aluminum and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the left side of the exterior cabinet door opening. The lights will be controlled by an automatic door switch.</p>  |
| 0633118 | SP | Restraint, Webbing, Rear Wall, DS, Bunker Gear                                | <b>WEB NETTING FOR BUNKER GEAR ON DRIVER SIDE REAR WALL</b>   |
|         |    |   | <p>There will be web netting provided in the forward facing driver side outboard position. The netting is to be made with 1.00" wide nylon material with 2.00" openings. Footman loops will be used to permanently fasten the inboard side and quick-release buckles will be used to fasten the opposite side of the opening. The netting will be mounted to the rear wall of the crew cab next to the center seat and on the side wall next to the crew cab door. The netting will be as high as the center crew cab seat.</p>   |
| 0122744 |    | Seat, Forward Facing C/C, Center, (2) Pierce PS6, Premium, SCBA, Safety       | <b>FORWARD FACING CENTER SEATS</b>  |
|         |    |   | <p>There will be two (2) forward facing, Pierce PS6® seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat backs will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seats will include the following feature incorporated into the side roll protection system: A seat safety system will be included. When activated, this system will pretension the seat belts around the occupants to firmly hold them in place in the event of a side roll.</p> <p>The seats will be furnished with 3-point, shoulder type seat belts. The seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p> |
| 0633115 | SP | Restraint, Webbing, Rear Wall, PS, Bunker Gear                                | <b>WEB NETTING FOR BUNKER GEAR ON PASSENGER SIDE REAR WALL</b>  |
|         |    |   | <p>There will be web netting provided in the forward facing passenger side outboard position. The netting is to be made with 1.00" wide nylon material with 2.00" openings. Footman loops will be used to permanently fasten the inboard side and quick-release buckles will be used to fasten the opposite side of the opening. The netting will be mounted to the rear wall of the crew cab next to the center seat and on the side wall next to the crew cab door. The netting will be as high as the center crew cab seat.</p>  |
| 0625813 | SP | Compt, Storage, 40 W x 14.50 H x 24 D, Rr Face, Top Eng Tnl, Web, SP Mtg, Vel | <b>STORAGE COMPARTMENT</b>  |
|         |    |   | <p>A storage compartment will be provided in the crew cab. Compartment size will be approximately 40.00" wide x 14.50" high x 24.00" deep. The interior door will be web netting. The netting is to be made with 1.00" wide nylon material with 2.00" openings. The netting will be permanently attached at the bottom and be provided with web straps that loop through footman loops located at top. The clear door opening of the compartment will be approximately 39.50" wide x 12.00" high. A flange will be provided along the top edge of the compartment only.</p> <p>Compartment will be constructed of 0.18" smooth aluminum and painted to match the cab interior.</p> <p>The compartment will be located on the top rear of the engine tunnel, facing the rear of the crew cab.</p> <p><b>Compartment Light</b></p> <p>There will be two (2) white LED strip lights installed, one (1) each side of the compartment opening. The lights will be controlled by a switch on the exterior of the compartment.</p>   |
| 0651182 |    | Scuffplate, Cabinet, Interior Door Pan, Cab                                   | <b>DOOR PAN SCUFFPLATE</b>  |
|         |    |   | <p>There will be a polished stainless steel scuffplate on the interior door pan of two (2) cabinet door (s) located each EMS compartment door.</p>  |
| 0617407 |    | Matting, Turtle Tile, EMS Compt, 0.75" Thick                                  | <b>MATTING IN EMS COMPARTMENT</b>   |
|         |    |   | <p>Turtle Tile vinyl grating will be provided in two (2) EMS compartments, install in DS &amp; PS rear facing cabinets. Notch the matting around the large bolt heads so that the matting sits flush.. Tile color will be black.</p>  |

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| 0634224 | SP<br>Compt, Storage, (2) Rr Fcng,<br>Overhead, 22W x 10H x 20D,<br>Louvers,Plate,Imp/Vel FR | <b>REAR FACING OVERHEAD STORAGE COMPARTMENTS</b><br>There will be two (2) overhead rear facing storage compartments installed at the raised roof within the crew cab, on each side of the air conditioner. The compartments will be approximately 22.00" wide x 10.00" high x 20.00" deep at the bottom.<br>Each compartment will include one (1) lift up compartment door. Non-locking latch, paddle handle, and gas operated stay arms will be provided. Louvers will be located on each side of the latch on both doors.<br>The passenger side compartment will have a smooth aluminum plate bolted to the bottom. The plate will be spaced 1.00" off the bottom and painted to match the cab interior.<br>The compartment will be constructed of smooth aluminum and painted to match the cab interior. |
| 0766467 | Upholstery, Seats In Cab, All Vinyl,<br>Seats Inc, CARE                                      | <b>SEAT UPHOLSTERY</b><br>All seat upholstery will be leather grain 36 oz gray vinyl resistant to oil, grease and mildew. The cab will have four (4) seating positions.   |
| 0543991 | Bracket, Air Bottle, Hands-Free II,<br>Cab Seats   | <b>AIR BOTTLE HOLDERS</b><br>All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G.<br>There will be a quantity of three (3) SCBA brackets.  |
| 0034597 | Riser, Frwrđ Facing C/C seats raised<br>3.00", w/Raised Roof cab only                        | <b>FORWARD FACING SEAT RISER</b><br>The forward facing seat riser in the crew cab will be raised up 3.00".  |
| 0603867 | Seat Belt, ReadyReach  | <b>SEAT BELTS</b><br>All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.<br>The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.<br>Any flip up seats will include a 3-point shoulder type belts only.   |
| 0604867 | Seat Belt Height Adjustment, 4 Seats,<br>Imp/Vel, Dash CF                                    | <b>SHOULDER HARNESS HEIGHT ADJUSTMENT</b><br>All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter.<br>A total of four (4) seating positions will have the adjustable shoulder harness.  |
| 0627014 | Pick Not Required, Seat Belt Color<br>Selected in Seat Belt Option 627339                    |   |
| 0602464 | Helmet Storage, Provided by Fire<br>Department, NFPA 2016                                    | <b>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</b><br>NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided. There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.   |
| 0647638 | Lights, Dome, Weldon Dual LED 4<br>Lts   | <b>CAB DOME LIGHTS</b><br>There will be four (4) Weldon 808* series, dual LED dome lights with grey bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab.<br>The color of the LED's will be red and white .<br>The white LED's will be controlled by the door switches and the lens switch.<br>The color LED's will be controlled by the lens switch.   |
| 0631779 | Light, Map, Overhead, Round<br>Halogen, AXT/Imp/Vel/Dash CF,<br>Hawk EX                      | <b>OVERHEAD MAP LIGHTS</b><br>There will be two (2) white halogen, round adjustable map lights installed in the cab:<br>One (1) overhead in front of the driving position.<br>One (1) overhead in front of the passenger's position.<br>Each light will include a switch on the light housing.<br>The light switches will be connected directly to the battery switched power.  |

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| 0555812 | Handlts, (2) Streamlight, Fire Vulcan, 44451 C4 LED, Tail lights, 12v, Orange | <p><b>HAND HELD LIGHT</b></p> <p>There will be two (2) 12v Streamlight, Fire Vulcan, Model #44451, lights mounted in the crew cab, one (1) each side of forward facing seat base with lens facing up per photo "IMG_0289". Each light housing will be orange in color and be provided with a C4 LED and two (2) "ultra bright blue tail light LEDs" The tail light LEDs will have a dual mode of blinking or steady. Vehicle mount with 12VDC direct wire charging rack. Quick release buckle strap will be included.</p>   |
| 0568369 | Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010, Dash CF    | <p><b>CAB INSTRUMENTATION</b></p> <p>The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.</p> <p><b>Gauges</b></p> <p>The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:</p> <ul style="list-style-type: none"> <li><b>Voltmeter gauge (Volts)</b></li> <li><b>Low volts (11.8 VDC)</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> <li><b>High volts (15 VDC)</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> <li><b>Very low volts (11.3 VDC)</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> <li><b>Very high volts (16 VDC)</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> <li><b>Tachometer (RPM)</b></li> <li><b>Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)</b></li> <li><b>Fuel level gauge (Empty - Full in fractions)</b></li> <li><b>Low fuel (1/8 full)</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> <li><b>Very low fuel (1/32) fuel</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> <li><b>Engine oil pressure gauge (PSI)</b></li> <li><b>Low oil pressure to activate engine warning lights and alarms</b></li> <li><b>Red indicator on gauge assembly with alarm</b></li> <li><b>Front air pressure gauge (PSI)</b></li> <li><b>Low air pressure to activate warning lights and alarm</b></li> <li><b>Red indicator on gauge assembly with alarm</b></li> <li><b>Rear air pressure gauge (PSI)</b></li> <li><b>Low air pressure to activate warning lights and alarm</b></li> <li><b>Red indicator on gauge assembly with alarm</b></li> <li><b>Transmission oil temperature gauge (Fahrenheit)</b></li> <li><b>High transmission oil temperature activates warning lights and alarm</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> <li><b>Engine coolant temperature gauge (Fahrenheit)</b></li> <li><b>High engine temperature activates an engine warning light and alarm</b></li> <li><b>Red indicator on gauge assembly with alarm</b></li> <li><b>Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)</b></li> <li><b>Low fluid (1/8 full)</b></li> <li><b>Amber indicator on gauge assembly with alarm</b></li> </ul> <p>All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.</p> <p><b>Indicator Lamps</b></p> <p>To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.</p> <p>The following amber telltale lamps will be present:</p> <ul style="list-style-type: none"> <li>Low coolant</li> <li>Trac cntl (traction control) (where applicable)</li> <li>Check engine</li> <li>Check trans (check transmission)</li> <li>Aux brake overheat (Auxiliary brake overheat)</li> <li>Air rest (air restriction)</li> <li>Caution (triangle symbol)</li> <li>Water in fuel</li> <li>DPF (engine diesel particulate filter regeneration)</li> <li>Trailer ABS (where applicable)</li> <li>Wait to start (where applicable)</li> <li>HET (engine high exhaust temperature) (where applicable)</li> <li>ABS (antilock brake system)</li> <li>MIL (engine emissions system malfunction indicator lamp) (where applicable)</li> <li>SRS (supplemental restraint system) fault (where applicable)</li> <li>DEF (low diesel exhaust fluid level)</li> </ul> <p>The following red telltale lamps will be present:</p> <ul style="list-style-type: none"> <li>Warning (stop sign symbol)</li> <li>Seat belt</li> <li>Parking brake</li> <li>Stop engine</li> <li>Rack down</li> </ul> <p>The following green telltale lamps will be provided:</p> <ul style="list-style-type: none"> <li>Left turn</li> <li>Right turn</li> </ul> |

#### **Battery on**

The following blue telltale lamp will be provided:

#### **High beam**

#### **Alarms**

**Audible steady tone warning alarm:** A steady audible tone alarm will be provided whenever a warning message is present.

**Audible pulsing tone caution alarm:** A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

**Alarm silence:** Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for 3 to 5 seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

#### **Indicator Lamp and Alarm Prove-Out**

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

#### **Control Switches**

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

**Emergency master switch:** A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

**Headlight / Parking light switch:** A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

**Panel backlighting intensity control switch:** A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

**High idle engagement switch:** A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

**"Ok To Engage High Idle" indicator lamp:** A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

**Ignition switch:** A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for 3 to 5 seconds. A green indicator lamp will be activated with vehicle ignition.

**Engine start switch:** A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

**4-way hazard switch:** A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

**Heater, defroster, and air conditioning control panel.**

**Turn signal arm:** A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

**Parking brake control:** An air actuated push/pull park brake control valve will be provided.

**Chassis horn control:** Activation of the chassis horn control will be provided through the center of the steering wheel.

#### **Custom Switch Panels**

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

#### **Diagnostic Panel**

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

Engine diagnostic port

Transmission diagnostic port

ABS diagnostic port

SRS diagnostic port (where applicable)

Command Zone USB diagnostic port

ABS diagnostic switch (blink codes flashed on ABS telltale indicator)

Diesel particulate filter regeneration switch (where applicable)  
 Diesel particulate filter regeneration inhibit switch (where applicable)  
**Cab LCD Display**  
 A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature. The upper right section will display, along with other configuration specific information:  
**Odometer**  
**Trip mileage**  
**PTO hours**  
**Fuel consumption**  
**Engine hours**  
 The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

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| 0509511 | Air Restriction Indicator, Imp/Vel, AXT, Dash CF, Enf MUX     | <b>AIR RESTRICTION INDICATOR</b><br>A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm will be provided.   |
| 0543751 | Light, Do Not Move Apparatus                                  | <b>"DO NOT MOVE APPARATUS" INDICATOR</b><br>A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."<br>The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.   |
| 0509042 | Messages, Open Dr/DNMT, Color Dsply,                          | <b>DO NOT MOVE TRUCK MESSAGES</b><br>Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged). The following messages will be displayed (where applicable):<br>Do Not Move Truck<br>DS Cab Door Open (Driver Side Cab Door Open)<br>PS Cab Door Open (Passenger's Side Cab Door Open)<br>DS Crew Cab Door Open (Driver Side Crew Cab Door Open)<br>PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)<br>DS Body Door Open (Driver Side Body Door Open)<br>PS Body Door Open (Passenger's Side Body Door Open)<br>Rear Body Door Open<br>DS Ladder Rack Down (Driver Side Ladder Rack Down)<br>PS Ladder Rack Down (Passenger Side Ladder Rack Down)<br>Deck Gun Not Stowed<br>Lt Tower Not Stowed (Light Tower Not Stowed)<br>Fold Tank Not Stowed (Fold-A-Tank Not Stowed)<br>Aerial Not Stowed (Aerial Device Not Stowed)<br>Stabilizer Not Stowed<br>Steps Not Stowed<br>Handrail Not Stowed<br>Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged. |
| 0551600 | Switching, Cab, Rocker MUX, Impel/Velocity, AXT MUX, Dash CF  | <b>SWITCH PANELS</b><br>The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain up to six (6) rocker-type switches each rated for two hundred thousand (200,000) cycles. Panels with less than six (6) switches will include indicators or blanks. The switch panel(s) will be located in the "overhead" position above the windshield on the driver side overhead to allow for easy access. The switches will be rocker-type and include an integral indicator light. For quick, visual indication the switch will be illuminated whenever the switch is active. A 2-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed below the switches. The label will allow light to pass through the letters for improved visibility in low light conditions. Switches and light source are integral to the switch panel assembly.  |
| 0555915 | Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocity | <b>WIPER CONTROL</b><br>For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.   |

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| 0548004 | Wiring, Spare, 15 A 12V DC 1st                                       | <p><b>SPARE CIRCUIT</b><br/> There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power<br/> The negative wire will be connected to ground<br/> Wires will be protected to 15 amps at 12 volts DC<br/> Power and ground will terminate to the left of the officer behind the VDR plug (#101) and forward of switch assembly #9<br/> Termination will be with 15 amp, power point plug with rubber cover<br/> Wires will be sized to 125 percent of the protection<br/> The circuit(s) may be load managed when the parking brake is set.</p>  |
| 0548007 | Wiring, Spare, 15 A 12V DC 3rd                                       | <p><b>SPARE CIRCUIT</b><br/> There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 15 amps at 12 volts DC.<br/> Power and ground will terminate two in switch panel location #9.<br/> Termination will be with 15 amp, power point plug with rubber cover.<br/> Wires will be sized to 125 percent of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p>   |
| 0548009 | Wiring, Spare, 20 A 12V DC 1st                                       | <p><b>SPARE CIRCUIT</b><br/> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power<br/> The negative wire will be connected to ground<br/> Wires will be protected to 20 amps at 12 volts DC<br/> Power and ground will terminate rear facing overhead compartment on the PS with 4' of wire coiled up and marked "BATTERY DIRECT"<br/> Termination will be with heat shrinkable butt splicing<br/> Wires will be sized to 125% of the protection<br/> This circuit(s) may be load managed when the parking brake is set.</p>  |
| 0548013 | Wiring, Spare, 20 A 12V DC 2nd                                       | <p><b>SPARE CIRCUIT</b><br/> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery switched power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 20 amps at 12 volts DC.<br/> Power and ground will terminate the rear facing overhead compartment on the PS with 4' of wire coiled up and marked "BATTERY SWITCHED".<br/> Termination will be with heat shrinkable butt splicing.<br/> Wires will be sized to 125% of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p>   |
| 0657222 | Wiring, Spare, 20 A 12V DC, 12 Circuit Fuse Block, Blue Sea 5026 1st | <p><b>SPARE CIRCUIT</b><br/> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 20 amps at 12 volts DC.<br/> Power and ground will terminate one (1) mounted on the backside of the DS rear facing EMS compartment down low inboard toward the engine tunnel best possible location. Be sure to label the fuse box "BATTERY SWITCHED".<br/> Termination will be to a Blue Sea System, Model 5026, 12 circuit with negative bus bar, straight blade fuse block. The terminal block will include a cover with circuit labels.<br/> Wires will be sized to 125% of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p>          |
| 0641696 | Wiring, Spare, 20 A 12V DC, 12 Circuit Fuse Block, Blue Sea 5026 2nd | <p><b>SPARE CIRCUIT</b><br/> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery switched power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 20 amps at 12 volts DC.<br/> Power and ground will terminate one (1) mounted on the backside of the DS rear facing EMS compartment down low inboard toward the engine tunnel best possible location. Be sure to label the fuse box "BATTERY SWITCHED".<br/> Termination will be to a Blue Sea System, Model 5026, 12 circuit with negative bus bar, straight blade fuse block. The terminal block will include a cover with circuit labels.<br/> Wires will be sized to 125% of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p> |

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| 0566101 | Recess, Dash Panel, Officer Side, Vel/Imp                      | <p><b>DASH PANEL RECESS</b><br/>The dash panel across from the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be 7.25" down x 7.81" back and 20.88" wide.</p>   |
| 0044166 | Swivel Mount, Heavy Duty, Fill in Blank Feature                | <p><b>SWIVEL MOUNT</b><br/>There will be one (1) Johnny Ray, Model JR-300 heavy duty swivel mount bracket(s), rated for a maximum of seven (7) lbs, provided for the fire department's radio equipment. The swivel mount bracket(s) will be located centered overhead between "panel position A" and "panel position B" per photo "IMAGE JPEG 6".</p>   |
| 0615386 | Vehicle Information Center, 7" Color Display, Touchscreen, MUX | <p><b>INFORMATION CENTER</b><br/>An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.<br/>The information center will have the following specifications:<br/>Operate in temperatures from -40 to 185 degrees Fahrenheit<br/>An Optical Gel will be placed between the LCD and protective lens<br/>Five weather resistant user interface switches<br/>Grey with black accents<br/>Sunlight Readable<br/>Linux operating system<br/>Minimum of 1000nits rated display<br/>Display can be changed to an available foreign language<br/>A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.<br/>Programmed to read US Customary</p> <p><b>General Screen Design</b><br/>Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur:<br/>An amber background/text color will indicate a caution condition<br/>A red background/text color will indicate a warning condition<br/>The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.<br/>A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.</p> <p><b>Home/Transit Screen</b><br/>This screen will display the following:<br/>Vehicle Mitigation (if equipped)<br/>Water Level (if the water level system includes compatible communications to the information center)<br/>Foam Level (if the foam level system includes compatible communications to the information center)<br/>Seat Belt Monitoring Screen<br/>Tire Pressure Monitoring (if equipped)<br/>Digital Speedometer<br/>Active Alarms</p> <p><b>On Scene Screen</b><br/>This screen will display the following and will be auto activated with pump engaged (if equipped):<br/>Battery Voltage<br/>Fuel<br/>Oil Pressure<br/>Coolant Temperature<br/>RPM<br/>Water Level (if equipped)<br/>Foam Level (if equipped)<br/>Foam Concentration (if equipped)<br/>Water Flow Rate (if equipped)<br/>Water Used (if equipped)<br/>Active Alarms</p> <p><b>Virtual Buttons</b><br/>There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.</p> <p><b>Page Screen</b><br/>The page screen will display the following and allow the user to progress into other screens for further functionality:<br/>Diagnostics<br/>Faults<br/>Listed by order of occurrence<br/>Allows to sort by system<br/>Interlock<br/>Throttle Interlocks<br/>Pump Interlocks (if equipped)<br/>Aerial Interlocks (if equipped)<br/>PTO Interlocks (if equipped)<br/>Load Manager<br/>A list of items to be load managed will be provided. The list will provide a description of the load. The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.<br/>The screen will indicate if a load has been shed (disabled) or not shed.</p> |

"At a glance" color features are utilized on this screen.

Systems

Command Zone

Module type and ID number

Module Version

Input or output number

Circuit number connected to that input or output

Status of the input or output

Power and Constant Current module diagnostic information

Foam (if equipped)

Pressure Controller (if equipped)

Generator Frequency (if equipped)

Live Data

General Truck Data

Maintenance

Engine oil and filter

Transmission oil and filter

Pump oil (if equipped)

Foam (if equipped)

Aerial (if equipped)

Setup

Clock Setup

Date & Time

12 or 24 hour format

Set time and date

Backlight

Daytime

Night time

Sensitivity

Unit Selection

Home Screen

Virtual Button Setup

On Scene Screen Setup

Configure Video Mode

Set Video Contrast

Set Video Color

Set Video Tint

Do Not Move

The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated

Driver Side Cab Door

Passenger's Side Cab Door

Driver Side Crew Cab Door

Passenger's Side Crew Cab Door

Driver Side Body Doors

Passenger's Side Body Doors

Rear Body Door(s)

Ladder Rack (if applicable)

Deck Gun (if applicable)

Light Tower (if applicable)

Hatch Door (if applicable)

Stabilizers (if applicable)

Steps (if applicable)

Notifications

View Active Alarms

Shows a list of all active alarms including date and time of the occurrence is shown with each alarm

Silence Alarms - All alarms are silenced

Timer Screen

HVAC (if equipped)

Tire Information (if equipped)

Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

0734857

Collision Mitigation, HAAS Alert  
(R2V), HA5

**COLLISION MITIGATION**

There will be a HAAS Alert®, Model HA5 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA5 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degree C to 85 degree C.

The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.

While responding with emergency lights on, the HA5 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.

While on scene with emergency lights on, the HA5 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA5 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5 year cellular plan subscription.

Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.

0606231

Not Required, Vehicle Data Recorder  
and Seat Belt Monitor,  
1906/Export/ULC

Bid #: 621

28



|         |  |  |
|---------|--|--|
| 0699100 | Install Customer Provided Key Storage, Knox Box, in Cab                          | <p><b>KNOX-BOX®</b><br/> There will be one (1) Knox-Box(s) sent to the apparatus manufacturers preferred installer and installed at RUN WIRES ONLY to the area in front of the officer, towards the left (see marked up instrument panel drawing for general location). Mounting location will be determined at time of construction review inspection. Specific shipping requirements will be followed.<br/> A "technician's key" will be provided by the customer for each Knox Box. The box cannot be installed without a compatible technician's key.</p>  |
| 0616382 | Install Customer Provided GPS/Multimode Antenna(s)                               | <p><b>GPS / MULTIMODE ANTENNA INSTALLATION</b><br/> There will be one (1) customer supplied GPS / Multimode antenna(s) with stud mount for thick roof material to be installed on the roof. The antenna coax cable(s) will be run per the packing list / instructions provided to the third party installer.<br/> Specific shipping requirements will be followed. The GPS / Multimode antenna will be sent to the apparatus manufacturers preferred installer prior to cab fabrication.</p>   |
| 0660489 | Antenna Mount, Custom Chassis, Fill in Blank Mounting and Cable Locations        | <p><b>RADIO ANTENNA MOUNT</b><br/> There will be two (2) standard 1.125", 18 thread, NMO type antenna mounting base(s) installed antenna to be approximately 14" behind the lightbar, and centered between the A/C condenser and side of the cab on the DS. Terminate cable in the rear facing overhead compartment on the PS on the cab roof with high efficiency, low loss, coaxial cable(s) routed within the cab / crew area to the rear facing overhead compartment on the PS . A weatherproof cap will be installed on the mount.</p>  |
| 0755515 | Camera, Pierce, Drivers Mux Display, R, RS Cameras                               | <p><b>VEHICLE CAMERA SYSTEM</b><br/> There will be a color vehicle camera system provided with the following:<br/> One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse<br/> One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal<br/> The camera images will be displayed on the driver's vehicle information center display. Audio from the microphone on the rear camera will be emitted by an amplified speaker with volume control in the blank panel to the right of the steering column.<br/> The following components will be included:<br/> One (1) SV-CW134639CAI Camera<br/> One (1) CS134404CI Side camera<br/> One (1) Amplified speaker (if applicable)<br/> All necessary cables</p>  |
| 0523921 | Recess, Rear Vision Camera   | <p><b>RECESS REAR CAMERA</b><br/> A rear camera recess will be provided in the center at the rear .</p>  |
| 0615100 | Pierce Command Zone, Advanced Electronics & Control System, Diag LEDs, Vel, WiFi | <p><b>ELECTRICAL POWER CONTROL SYSTEM</b><br/> The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.<br/> Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.<br/> Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.<br/> <b>Solid-State Control System</b><br/> A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.<br/> The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.<br/> For increased reliability and simplified use the control system modules will include the following attributes:<br/> Green LED indicator light for module power<br/> Red LED indicator light for network communication stability status<br/> Control system self test at activation and continually throughout vehicle operation<br/> No moving parts due to transistor logic<br/> Software logic control for NFPA mandated safety interlocks and indicators<br/> Integrated electrical system load management without additional components<br/> Integrated electrical load sequencing system without additional components<br/> Customized control software to the vehicle's configuration<br/> Factory and field re programmable to accommodate changes to the vehicle's operating</p> |

parameters

Complete operating and troubleshooting manuals

USB connection to the main control module for advanced troubleshooting

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

Module circuit board will meet SAE J771 specifications

Operating temperature from -40C to +70C

Storage temperature from -40C to +70C

Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 16 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

#### **Circuit Protection and Control Diagram**

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

#### **On-Board Advanced/Visual Electrical System Diagnostics**

The on-board information center will include the following diagnostic information:

Text description of active warning or caution alarms

Simplified warning indicators

Amber caution indication with intermittent alarm

Red warning indication with steady tone alarm

All control system modules, with the exception of the main control module, will contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs will be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output will be provided and will illuminate whenever the respective input or output is active. Color-coded labels within the modules will encompass the LEDs for ease of identification. The LED indicator lights will provide point of use information for reduced troubleshooting time without the need for an additional computer.

#### **Tech Module with WiFi**

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz.

The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The data logging capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.

A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.

#### **Prognostics**

A software based vehicle tool will be provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone, color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics will include:

Engine oil and filter

Transmission oil and filter

Pump oil (if equipped)

Foam oil (if equipped)

Aerial oil and filter (if equipped)

#### **Advanced Diagnostics**

An advanced, Windows-based, diagnostic software program will be provided for this control system. The software will provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software will be easy to understand and use and have the ability to view system input/output (I/O) information.

#### **Indicator Light and Alarm Prove-Out System**

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

#### **Voltage Monitor System**

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

#### **Dedicated Radio Equipment Connection Points**

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

The studs will consist of the following:

12-volt 40-amp battery switched power

12-volt 60-amp ignition switched power

12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

#### **Enhanced Software**

The solid-state control system will include the following software enhancements:

All perimeter lights and scene lights (where applicable) will be deactivated when the parking brake is released.

Cab and crew cab dome lights will remain on for 10 seconds for improved visibility after the doors close. The dome lights will dim after 10 seconds or immediately if the vehicle is put into gear.

Cab and crew cab perimeter lights will remain on for 10 seconds for improved visibility after the doors close. The dome lights will dim after 10 seconds or immediately if the vehicle is put into gear.

#### **EMI/RFI Protection**

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

0730603

Electrical System, Velocity ESP

#### **ELECTRICAL**

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal.

Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.

Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.

Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.

Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).

All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

0079211

Batteries, (6) Exide Grp 31, 950 CCA each, Threaded Stud

#### **BATTERY SYSTEM**

There will be six (6) 12 volt Exide®, Model 31S950X3W, batteries that include the following features will be provided:

950 CCA, cold cranking amps

190 amp reserve capacity

High cycle

Group 31

Rating of 5700 CCA at 0 degrees Fahrenheit

1140 minutes of reserve capacity

Threaded stainless steel studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

0008621

Battery System, Single Start, All Custom Chassis

#### **BATTERY SYSTEM**

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

#### **MASTER BATTERY SWITCH**

There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

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| 0123174 | Battery Compartment, Imp/Vel  | <p><b>BATTERY COMPARTMENTS</b><br/>The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.</p> <p><b>JUMPER STUDS</b><br/>One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.</p> |
| 0531325 | Charger, Sngl Sys, Kussmaul, 35/10, 091-35/10                             | <p><b>BATTERY CHARGER</b><br/>A Kussmaul Autocharge 35/10, Model 091-35-10, single battery charger will be provided. A bar graph display indicating the state of charge will be provided.<br/>The battery saver circuit will be capable of supplying up to 10 amps for external loads such as hand light or auxiliary radio batteries.<br/>The battery charger will be wired to the 120-volt shoreline to activate automatically when power is connected.</p>  |
| 0688318 | Location, Charger, Cab Behind Driver Seat, On the EMS Compt Vertical Wall | Battery charger will be located in the cab behind the driver seat, on the vertical wall of the EMS compartment.  |
| 0696190 | Location, Bat Chrg Ind, DS Cab Corner                                     | The battery charger indicator will be located on the driver's side front cab corner.   |
| 0016857 | Shoreline, 20A 120V, Kussmaul Auto Eject, 091-55-20-120, Super            | <p><b>AUTO EJECT FOR SHORELINE</b><br/>There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.<br/>The shoreline inlet(s) will include yellow weatherproof flip up cover(s).<br/>There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.<br/>The shoreline(s) will be connected to the battery charger.<br/>There will be a mating connector body supplied with the loose equipment.<br/>There will be a label installed near the inlet(s) that state the following:<br/>Line Voltage<br/>Current Rating (amps)<br/>Phase<br/>Frequency</p>  |
| 0026800 | Shoreline Location  | The shoreline receptacle will be located on the driver side of cab, to the front of cab door.  |
| 0121711 | Alternator, 320 amp, Leece-Neville 4962PA, Sgl Sys                        | <p><b>ALTERNATOR</b><br/>A Leece-Neville, Model 4962PA, alternator will be provided. It will have a rated output current of 320 amps, as measured by SAE method J56. The alternator will feature an integral, self diagnostic regulator and rectifier. The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p>  |
| 0642647 | SP Fan, Electrical Component Cooling 12 V, Switched Battery, Ignition     | <p><b>FAN, ELECTRICAL COOLING</b><br/>There will be two (2) 12 volt DC electrical cooling fan to exhaust the heat buildup in the 2-way radio storage cubicle located in the rear facing overhead compartment on the PS and DS in the best location as determined by the radio installer to promote air movement.<br/>The fan will be activated when the battery switch is on and the ignition switch is on.</p>  |

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| 0048324 | Load Manager/Sequencer, MUX,<br>With Out Switch                           | <b>ELECTRONIC LOAD MANAGER</b>  |
|         |   | <p>An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reduces the electrical load in the event of a low voltage condition, and automatically restores the shed electrical loads when the low voltage condition expires. This ensures the integrity of the electrical system. The ELM will monitor the vehicle's voltage while at the scene (parking brake applied).</p> <p>The system will include the following features:</p> <ul style="list-style-type: none"> <li>System voltage monitoring.</li> <li>Load Managing will not start for 30 seconds after engine start up.</li> <li>Five (5) minute cycle time, to prevent load activation and quick deactivation.</li> <li>Automatic High Idle Activation, to activate before any electric loads are shed and deactivate with the service brake.</li> <li>If enabled, Load Man Hi-Idle On will display on the information center. Sixteen available electronic load shedding levels.</li> <li>Priority levels can be set for individual outputs.</li> <li>Individual switch "on" indicator to flash when the particular load has been shed.</li> <li>The information center shows system voltage.</li> <li>Green indicator in the Indicator Light display, Load Manager is active.</li> <li>The information center includes a "Load Manager" screen indicating the following: <ul style="list-style-type: none"> <li>Load managed items list, with priority levels and item condition.</li> <li>Individual load managed item condition: <ul style="list-style-type: none"> <li>ON = not shed</li> <li>SHED = shed</li> <li>OVRD = overridden</li> </ul> </li> </ul> </li> </ul> |
|         |   | <b>SEQUENCER</b>  |
|         |   | <p>A warning light sequencer will be provided that automatically turns the emergency lights on and off in a preset sequence.</p> <p>The sequencer will be wired in conjunction with the emergency master light switch.</p> <p>When the switch is activated the lights will be turned on in sequence one by one at 1/2 second intervals thereby protecting the alternator from power surges. Sequenced light switch LED's will flash while waiting for activation.</p> <p>When turned off, the same process will deactivate the warning lights in sequence to allow a gradual decrease in alternator output, rather than dumping the load.</p> <p>The on/off switch for this system will be removed.</p>   |
| 0783153 | Headlights, Rect LED, JW Spkr Evo<br>2, AXT/DCF/Enf/Imp/Sab/Vel           | <b>HEADLIGHTS</b>   |
|         |   | <p>There will be four (4) JW Speaker®, Model 8800, 4" x 6" rectangular LED lights mounted in the front quad style, chrome housing on each side of the cab grille:</p> <ul style="list-style-type: none"> <li>the outside light on each side will contain a part number 055****1 low beam module</li> <li>the inside light on each side will contain a part number 055****1 high beam module</li> </ul> <p>the headlights to include chrome bezels</p> <p>The low beam lights will be activated when the headlight switch is on.</p> <p>The high beam and low beam lights will be activated when the headlight switch and the high beam switch is activated.</p>   |
| 0648425 | Light, Directional, WIn 600 Cmb, Cab<br>Crn, Imp/Vel/AXT/Qtm/DCF          | <b>DIRECTIONAL LIGHTS</b>   |
|         |   | <p>There will be two (2) Whelen 600® series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights.</p> <p>The color of the lenses will be the same color as the LED's.</p>   |
| 0648074 | Lights, Clearance/Marker/ID, Front,<br>P25 LED 7 Lts                      | <b>CAB CLEARANCE/MARKER/ID LIGHTS</b>   |
|         |   | <p>There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:</p> <ul style="list-style-type: none"> <li>Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.</li> <li>Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.</li> <li>Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.</li> </ul>   |
| 0620044 | Light, Directional/Marker,<br>Intermediate, Truck-Lite 21290Y LED<br>2lts | <b>INTERMEDIATE LIGHT</b>   |
|         |   | <p>There will be two (2) Truck-Lite®, Model 21290Y, amber LED lights furnished, one (1) each side of the rear fender panel. The light will double as a turn signal and marker light.</p>  |

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| 0627282 | Lights, Clearance/Marker/ID, Rear, FRP LED Bar & P25 LED 4Lts               | <p><b>REAR CLEARANCE/MARKER/ID LIGHTING</b></p> <p>There will be a three (3) LED light bar used as identification lights located at the rear of the apparatus per the following:<br/> As close as practical to the vertical centerline<br/> Centers spaced not less than 6.00" or more than 12.00" apart<br/> Red in color<br/> All at the same height</p> <p>There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:<br/> To indicate the overall width of the vehicle<br/> One (1) each side of the vertical centerline<br/> As near the top as practical<br/> Red in color<br/> To be visible from the rear<br/> All at the same height</p> <p>There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:<br/> To indicate the overall length of the vehicle<br/> One (1) each side of the vertical centerline<br/> As near the top as practical<br/> Red in color<br/> To be visible from the side<br/> All at the same height</p> <p>There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>Per FMVSS 108 and CMVSS 108 requirements.</p> |
| 0564683 | Lights, Tail, WIn M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir Arw For Hsg | <p><b>REAR FMVSS LIGHTING</b></p> <p>The rear stop/tail and directional LED lighting will consist of the following:<br/> Two (2) Whelen®, Model M6BTT, red LED stop/tail lights<br/> Two (2) Whelen, Model M6T, amber LED arrow turn lights<br/> The lights will be provided with color lenses.<br/> The lights will be mounted in a polished combination housing.</p>  |
| 0561471 | Lights, Backup, WIn M6BUW, LED, For Tail Lt Housing                         | <p>There will be two (2) Whelen Model M6BUW, LED backup lights provided in the tail light housing.</p>  |
| 0664481 | Bracket, License Plate & Light, P25 LED                                     | <p><b>LICENSE PLATE BRACKET</b></p> <p>There will be one (1) license plate bracket mounted on the rear of the body.<br/> A white LED light will illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.</p>  |
| 0556842 | Bezels, WIn, (2) M6 Chrome Pierce, For mtg (4) WIn M6 lights                | <p><b>LIGHTING BEZEL</b></p> <p>There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.</p>   |
| 0589905 | Alarm, Back-up Warning, PRECO 1040  | <p><b>BACK-UP ALARM</b></p> <p>A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</p>  |
| 0065911 | Switch, Back-Up Alarm Override  | <p><b>SWITCH, BACK-UP ALARM OVERRIDE</b></p> <p>There will be a momentary switch provided in the cab for the back-up alarm. The switch will be within reach of the driver. The switch will cancel the back-up alarm when the switch is pushed and automatically reset when the apparatus is shifted out of reverse.</p>   |
| 0578264 | Flash Pattern, California Title13, LED Warning Lights                       | <p><b>WARNING LIGHT FLASH PATTERN</b></p> <p>The flash pattern of all the exterior warning lights will be set to meet the certified California, Title XIII flash pattern by either the light manufacturer's default flash pattern or by a conversion change to the certified flash pattern.</p>   |
| 0769420 | Lights, Perimeter Cab, Amdor AY-LB-12HW020 LED 4Dr                          | <p><b>CAB PERIMETER SCENE LIGHTS</b></p> <p>There will be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one (1) for each cab door.<br/> These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.</p>   |

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| 0769572 | Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 2lts                | <p><b>PUMP HOUSE PERIMETER LIGHTS</b></p> <p>There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.</p> <p>If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the Amdor light will be installed.</p> <p>The lights will be controlled by the same means as the body perimeter lights.</p>  |
| 0770056 | Lights, Perimeter Body, Amdor AY-LB-12HW020 LED 2lts, Rear Step           | <p><b>BODY PERIMETER SCENE LIGHTS</b></p> <p>There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens, 20.00" long, white LED's, 12 volt DC lights provided at the rear step area of the body, one (1) each side shining to the rear. The perimeter scene lights will be activated when the parking brake is applied.</p>  |
| 0556360 | Lights, Step, P25 LED 4lts, Pump Pnl Sw                                   | <p><b>STEP LIGHTS</b></p> <p>Four (4) white LED step lights will be provided. One (1) step light will be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. These step lights will be actuated with the pump panel light switch. All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.</p> |
| 0598966 | Lights, Side Scene, FRC SPA900-Q70 Surface Mt, 2nd                        | <p><b>SCENE LIGHTS</b></p> <p>There will be one (1) Fire Research, Model SPA900-Q70 scene light(s) with chrome flange(s) installed on the side of the apparatus, on the passenger's side of the cab centered above the exterior access EMS door as high as possible.</p> <p>A control for the light(s) selected above will be the following:</p> <ul style="list-style-type: none"> <li>a switch at the driver's side switch panel</li> <li>a switch at the passenger's side switch panel</li> <li>no additional switch location</li> <li>no additional switch location</li> </ul> <p>These lights may be load managed when the parking brake is set.</p>  |
| 0598967 | Lights, Side Scene, FRC SPA900-Q70 Surface Mt, 1st                        | <p><b>SCENE LIGHTS</b></p> <p>There will be one (1) Fire Research, Model SPA900-Q70 scene light(s) with chrome flange(s) installed on the side of the apparatus, on the driver's side of the cab centered above the exterior access EMS door as high as possible.</p> <p>A control for the light(s) selected above will be the following:</p> <ul style="list-style-type: none"> <li>a switch at the driver's side switch panel</li> <li>a switch at the passenger's side switch panel</li> <li>no additional switch location</li> <li>no additional switch location</li> </ul> <p>These lights may be load managed when the parking brake is set.</p>   |
| 0618310 | Light, Visor, FRC, 12V SPA851-Q20-*, LED 1st                              | <p><b>12 VOLT LIGHTING</b></p> <p>There will be one (1) Fire Research, Model SPA851-Q20-*, 12 volt LED floodlight(s) provided on the front visor, centered.</p> <p>The housing(s) painted parts of this light assembly to be white with a white bezel.</p> <p>The light(s) will be controlled in the following way:</p> <ul style="list-style-type: none"> <li>a switch at the driver's side switch panel</li> <li>no additional switch location</li> <li>no additional switch location</li> <li>no additional switch location</li> </ul> <p>These lights may be load managed when the parking brake is applied.</p>   |
| 0532358 | Not Required, Deck Lights, Other Hose Bed & Rear Lighting                 |  |
| 0645879 | Lights, Hose Bed, Cover, Dual Amdor AY-9750-20 LED Light Strips 2lts, Low | <p><b>HOSE BED LIGHTS</b></p> <p>There will be Amdor LumaBar H2O, Model AY-9750-20, 20.00" white 12 volt DC LED light strips provided to illuminate the hose bed area.</p> <p>One (1) LED light strip will be installed on the driver's side hose bed cover 30.00" from the front of the hose bed, as close to the hinge as practical.</p> <p>One (1) LED light strip will be installed on the passenger's side hose bed cover 30.00" from the rear of the hose bed, as close to the hinge as practical.</p> <p>The lights will be activated when the hosebed cover is raised.</p>   |
| 0645677 | Lights, Not Required, Rear Work, Alt. 12 Volt Lights At Rear Body         |  |
| 0086038 | Switch(es), 12VDC, 30Amp Connect to Fill in Blank                         | <p><b>SWITCH, ADDITIONAL</b></p> <p>Additional 12V switch(es) will be provided. There will be one (1) switch located on the driver's side pump panel to control the rear scene lights included in option #591872.</p>  |

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| 0763248 | Lights, Walk Surf, Amdor AY-LB-12HW0**, LED, Cargo Areas | <p><b>WALKING SURFACE LIGHTS</b></p> <p>There will be One (1) Amdor®, Model AY-LB-12HW0**, white 12 volt DC LED strip light(s) provided in the cargo area(s) to illuminate the interior surface of the cargo area(s). Light(s) will be Cargo flange match 31902.</p> <p>The light will be activated when the body step lights are on.</p>  |
| 0060111 | Pumper, Medium, Galvanneal, 2nd Gen                      |  |
| 0554271 | Body Skirt Height, 20"                                   |  |
| 0028245 | Tank, Water, 750 Gallon, Poly, Med                       | <p><b>WATER TANK</b></p> <p>Booster tank will have a capacity of 750 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.</p> <p>Tank joints and seams will be nitrogen welded inside and out.</p> <p>Tank will be baffled in accordance with NFPA Bulletin 1901 requirements.</p> <p>Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments.</p> <p>Longitudinal partitions will be constructed of .38" polypropylene plastic and will extend from the bottom of the tank through the top cover to allow for positive welding.</p> <p>Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover.</p> <p>All partitions will interlock and will be welded to the tank bottom and sides.</p> <p>Tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions.</p> <p>Tank top will be sufficiently supported to keep it rigid during fast filling conditions.</p> <p>Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.</p> <p>A sump that will be sized dependent on the tank to pump plumbing will be provided at the bottom of the water tank.</p> <p>Sump will include a drain plug and the tank outlet.</p> <p>Tank will be installed in a fabricated cradle assembly constructed of structural steel.</p> <p>Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel bar channel or rectangular tubing.</p> <p>Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.</p> <p>Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle.</p> <p>Mounting system will be approved by the tank manufacturer.</p> |
| 0003405 | Overflow, 4.00" Water Tank, Poly                         | <p>Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.</p> <p>Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.</p> <p>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.</p>  |
| 0028104 | Foam Cell Required                                       |  |
| 0084432 | Modified Poly Tank, Ext'd Over Rear Compt                | The water tank will be extended to the rear of the truck, over the rear compartment.   |
| 0633066 | Sleeve, Through Tank                                     | <p><b>SLEEVE, PLUMBING, THROUGH TANK</b></p> <p>Two (2) sleeves will be provided in the water tank for a 3.00" pipe to the rear.</p>   |
| 0553729 | Not Required, Restraint, Water Tank, Heavy Duty          |  |
| 0003429 | Not Required, Direct Tank Fill                           |  |
| 0003424 | Not Required, Dump Valve                                 |  |
| 0048710 | Not Required, Jet Assist                                 |  |
| 0030007 | Not Required, Dump Valve Chute                           |  |
| 0514778 | Not Required, Switch, Tank Dump Master                   |  |



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| 0126632 | Hose Bed, Galv, Pumper   | <p><b>HOSE BED</b></p> <p>The hose bed will be fabricated of 12-gauge galvanized steel. The sides will not form any portion of the fender compartments. Upper and rear edges of side panels will have a double break for rigidity. The upper inside area of the beavertails will be covered with brushed stainless steel to prevent damage to painted surface when hose is removed. Flooring of the hose bed will be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats will be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.</p>   |
| 0003481 | Hose Bed Capacity, Special   | Hose bed will accommodate (DS to PS): 800' x 5.00" Angus / 1000' x 2.50" Endura / 250' x 2.50" Endura / 200' x 1.75" KeyMag Lite .   |
| 0003488 | Divider, Hose Bed, Unpainted   | <p><b>HOSE BED DIVIDER</b></p> <p>Three (3) adjustable hosebed dividers will be furnished for separating hose. Each divider will be constructed of a .125" brushed aluminum sheet fitted and fastened into a slotted, 1.50" diameter radiused extrusion along the top, bottom, and rear edge. Divider will be fully adjustable by sliding in tracks, located at the front and rear of the hose bed. Divider will be held in place by tightening bolts, at each end. Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.</p>  |
| 0010133 | Cross-Divider, Hose Bed  | A cross-divider will be provided just behind the fill tower. The divider will be bolted to the side sheet.   |
| 0530804 | Cover, Hose Bed, Alum Treadplate   | <p><b>HOSE BED COVER</b></p> <p>A two (2) section hose bed cover, constructed of .125" bright aluminum treadplate will be furnished. The cover will be hinged with full length stainless steel piano hinge. The sides will be slanted down. The cover will be reinforced so that it can support the weight of a man walking on the cover. The cover is designed with the left cover opening first. If access to the water tank fill tower is blocked by the hose bed cover, then a hinged door will be provided in it so that the tank may be filled without raising cover doors. Chrome grab handles and four (4) gas filled cylinders will be provided to assist in opening and closing the cover. A handrail is to be provided at the rear, in the center of the support, to assist in opening the cover.</p> |
| 0587696 | Hose Restraint, Hose Bed, One Piece Vinyl Flap, Strap Fastener, Hose Bed Frame, Rear | <p><b>HOSEBED RESTRAINT REAR</b></p> <p>There will be a black vinyl flap installed at the rear of the hosebed. The flap will be attached to the top hosebed frame with quarter turn fasteners. The flap will have straps that loop through footman loops at the bottom of the hosebed and fasten with spring clip and hook fasteners and chain.</p>  |
| 0695399 | Running Boards, 14.75" Deep, Front and Rear 45 Degree Corners                        | <p><b>RUNNING BOARDS</b></p> <p>Running boards will be fabricated of .125" bright aluminum treadplate. Each running board will be supported by a welded 2.00" square tubing and channel assembly, which will be bolted to the pump compartment substructure. Running boards will be 14.75" deep and spaced .50" away from the pump panel. The front and rear outside corner of the running board will be finished with a 45 degree corner where it lines up with the body. A splash guard will be provided above the running board treadplate.</p>   |
| 0689621 | Tailboard, 16" Deep  | <p><b>TAILBOARD</b></p> <p>The tailboard will also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly. The tailboard area will be 16.00" deep. The exterior side will be flanged down and in for increased rigidity of tailboard structure.</p>   |
| 0690037 | Wall, Rear, Smooth Aluminum/Body Material  | <p><b>REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL</b></p> <p>The rear facing surfaces of the center rear wall will be smooth aluminum. The bulkheads, the surface to the rear of the side body compartments, will be smooth and the same material as the body. Any inboard facing surfaces below the height of the hosebed will be aluminum diamondplate.</p>   |
| 0003531 | Tow Bar, Under Tailboard   | <p><b>TOW BAR</b></p> <p>A tow bar will be installed under the tailboard at center of truck. Tow bar will be fabricated of 1.00" CRS bar rolled into a 3.00" radius. Tow bar assembly will be constructed of .38" structural angle. When force is applied to the bar, it will be transmitted to the frame rail. Tow bar assembly will be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle. Tow bar design will have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.</p>   |

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| 0590934 | Hose Restraint, Running Board, Straps, FV Fastener           | <p><b>RUNNING BOARD HOSE RESTRAINT</b><br/>A pair of 2.00" wide black nylon straps with seat belt buckle fasteners will be provided for each hose tray to secure the hose during travel. There will be Two (2) hose trays located one (1) in each side running board.</p>  |
| 0084039 | SP Tray, Hose, Running Board, Spcl Cap, "Free Floating" Tray | <p><b>HOSE TRAY</b><br/>One (1) hose tray will be made free floating, located in the right hand side running board. The tray(s) will be flanged and drop in from the top. No fasteners will be used to secure the tray(s).<br/>The tray will be as wide and long as possible x 9.00" deep.<br/>Capacity of the tray will be 9" high x 9 1/2" deep x 46" long.<br/>The floor of the tray will be perforated to provide proper ventilation.</p>  |
| 0611453 | SP Tray, Hose, Running Board, Special Size                   | <p><b>HOSE TRAY</b><br/>One (1) hose tray will be recessed in the left hand side running board. The size of the tray will be 9" high x 9 1/2" deep x 46" long.<br/>Rubber matting will be installed on the floor of the tray to provide proper ventilation.</p>  |
| 0003560 | Construction, Compt, Galv, Pumper                            | <p><b>COMPARTMENTATION</b><br/>Body and compartments will be fabricated of galvaneal steel.<br/>Side compartments will be an integral assembly with the rear fenders.<br/>Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.<br/>Side compartment flooring will be 12 gauge and of the sweep out design, with the floor higher than the compartment door lip.<br/>The side compartment door opening will be framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle.<br/>Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate, or polished stainless steel.<br/>The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear, and outward side. These covers will have the corners TIG welded.<br/>Side compartment covers will be separate from the compartment tops.<br/>Front facing compartment walls will be covered with bright aluminum treadplate.<br/>All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.</p> <p><b>UNDERBODY SUPPORT SYSTEM</b><br/>Due to the severe loading requirements of this pumper, a method of body and compartment support suitable for the intended load will be provided.<br/>The backbone of the support system will be the chassis frame rails, which is the strongest component of the chassis and designed for sustaining maximum loads.<br/>The support system will include 0.375" thick steel vertical angle supports bolted to the chassis frame rails with 0.625" diameter bolts.<br/>Attached to the bottom of the steel vertical angles will be horizontal angles, with gussets welded to the vertical members, which extend to the outside edge of the body.<br/>A steel frame will be mounted on the top of these supports to create a floating substructure, which results in a 500 lb equipment support rating per lower compartment.<br/>The floating substructure will be separated from the horizontal members with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body.<br/>The isolators will have a broad load range, proven viability in vehicular applications, be of a fail safe design and allow for all necessary movement in three (3) transitional and rotational modes.<br/>The neoprene isolators will be installed in a modified V three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.</p> <p><b>AGGRESSIVE WALKING SURFACE</b><br/>All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.</p> <p><b>LOUVERS</b><br/>Louvers will be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they will be formed into the metal and not added to the compartment as a separate plate.</p> <p><b>TESTING OF BODY DESIGN</b><br/>Body structural analysis has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.<br/>The body will be tested while loaded to its greatest in-service weight.<br/>The criteria used during the testing procedure will include:<br/>Raising opposite corners of the vehicle tires 9.00", simulating the twisting a truck may experience when driving over a curb.<br/>Making a 90 degree turn while at 20 mph, simulating aggressive driving conditions.<br/>Driving the vehicle at 35 mph on a washboard road.<br/>Driving the vehicle at 55 mph on a smooth road.<br/>Accelerating the vehicle fully, until reaching the approximate speed of 45 mph, on rough pavement.<br/>Evidence of actual testing techniques will be made available upon request.</p> |

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| 0083610 | LS 152" Lap, Full Height Front & Rear           | <p><b>LEFT SIDE COMPARTMENTATION</b></p> <p>The left side compartmentation will consist of three lap door compartments.</p> <p>A full height, vertically hinged, single door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 34.50" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 28.63" wide x 61.88" high.</p> <p>A horizontally hinged, single lift-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 32.88" high x 12.00" deep. The clear door opening will be a minimum of 59.25" wide x 27.00" high.</p> <p>A full height, vertically hinged, double door compartment behind the rear wheels will be provided. <b>The interior dimensions of this compartment will be 47.75" wide x 67.63" high x 12.00" deep. A section of this compartment will be 25.88" deep for the first 31.50" width x 26.00" height directly behind the rear wheels. The clear door opening will be a minimum of 43.50" wide x 62.88" high.</b></p> <p><b>The interior height of the compartments will be measured from the compartment floor to the ceiling. The depth of the compartments will be measured from the back wall to the inside of the door frame.</b></p> <p><b>Closing of the doors will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.</b></p> <p><b>The vertically hinged doors will be furnished with a positive door holder.</b></p> <p><b>The lift-up door will be furnished with two gas-charged cylinders to assist in the opening of the door and to maintain the door in an open position. There will be a field adjustable, three-position bracket mounted on the vertical side door opening that will allow the door to be held open at 87°, 90°, or 93°.</b></p> |
| 0083636 | RS 152" Lap, 3/4 Height Front & Rear, (1) Broom | <p><b>RIGHT SIDE COMPARTMENTATION</b></p> <p>The right side compartmentation will consist of three lap door compartments.</p> <p>A vertically hinged, single door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 34.50" wide x 46.13" high x 25.88" deep in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 28.63" wide x 41.38" high.</p> <p>A horizontally hinged, drop-down door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 12.38" high x 12.00" deep. The clear door opening will be a minimum of 59.25" wide x 6.63" high.</p> <p>A vertically hinged, double door compartment behind the rear wheels will be provided. The interior dimensions of this compartment will be 47.75" wide x 47.13" high x 12.00" deep. A section of this compartment will be 25.88" deep for the first 31.50" width x 26.00" height directly behind the rear wheels. The clear door opening will be a minimum of 43.50" wide x 42.38" high.</p> <p>The interior height of the compartments will be measured from the compartment floor to the ceiling. The depth of the compartments will be measured from the back wall to the inside of the door frame.</p> <p>Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand. A positive door holder will be furnished with this compartment.</p>  |
| 0063911 | Doors, Lap w/ "D" Handles - Side Compartments   | <p><b>SIDE COMPARTMENT DOORS</b></p> <p>All hinged compartment doors will be lap style with double panel construction and will be a minimum of 1.50" thick. To provide additional door strength a "C" section reinforcement will be installed between the outer and interior panels.</p> <p>Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.</p> <p>All compartment doors will have polished stainless steel continuous hinge with a pin diameter of .25" that is bolted or screwed on with stainless steel fasteners.</p> <p>All door locking mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.</p> <p>Doors will be latched with recessed, polished stainless steel "D" ring handles and FMVSS approved door locking mechanisms.</p> <p>To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.</p>  |
| 0083700 | Compt, Rear, Rollup, 37.75" FF, 25.88" D        | <p><b>REAR COMPARTMENTATION</b></p> <p>A roll-up door compartment above the rear tailboard will be provided.</p> <p>The interior dimensions of this compartment will be 40.00" wide x 40.63" high x 25.88" deep. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartment will be calculated with the compartment door closed.</p> <p>A louvered, removable access panel will be furnished on the back wall of the compartment.</p> <p>The rear compartment will be open into the rear side compartments.</p> <p>The clear door opening of this compartment will be a minimum of 33.25" wide x 30.88" high.</p> <p>Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.</p>  |

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| 0692746 | Door, Gortite, Rollup, Rear<br>Compartment   | <p><b>ROLLUP REAR COMPARTMENT DOOR</b></p> <p>There will be a rear rollup door. The door will be double faced aluminum construction, an anodized satin finish and manufactured by Gortite®.</p> <p>Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.</p> <p>Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.</p> <p>All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.</p> <p>A polished stainless steel lift bar with locking key latches to be provided for each roll-up door. The keys to be Model 751 to match all compartment and cab doors. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.</p> <p>Door will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surface will be concave to provide strength and prevent loose equipment from jamming the door from inside.</p> <p>To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.</p> <p>The header for the rollup door assembly will not exceed 4.00".</p> <p>A heavy-duty magnetic switch will be used for control of open compartment door warning lights.</p> |
| 0554995 | No Body Modification Required  |  |
| 0562375 | Scuffplate, S/S, On Rear Outside,<br>Corner of Body, Full-Height                     | <p><b>SCUFFPLATE</b></p> <p>A brushed stainless steel scuffplate will be furnished on the rear outside corners of the body. The stainless steel will have a 90 degree angle and will overlap the sides of the body approximately 1.00". The scuffplate will be full height and/or cover the available amount of vertical surface.</p>  |
| 0731558 | Pull Strap for Liftup Doors  | <p><b>LIFTUP DOOR PULL STRAPS</b></p> <p>one (1) compartment door will be provided with pull straps. The pull straps will be 12.00" long and black in color.</p> <p>The straps will be installed directly to the inside of the liftup door.</p> <p>The liftup door compartments to have these straps will be LS2.</p>  |
| 0003919 | Reverse Hinge Compartment Door   | <p><b>REVERSE HINGED DOOR</b></p> <p>The one (1) compartment door, located LS3, will have the hinge at the rear of the door.</p>   |
| 0004012 | Scuffplate, Polished S/S, Inside Each<br>Compt Door                                  | <p><b>SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S)</b></p> <p>The eight (8) compartment doors will include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.</p> <p>Scuffplate will be located LS1, LS2, LS3 (2) doors, RS1, RS2 and RS3 (2 doors).</p>  |
| 0616670 | Lights, Compt, Pierce LED, Dual<br>Light Strips, Each Side of Door,<br>Pumper/Tanker | <p><b>COMPARTMENT LIGHTING</b></p> <p>There will be seven (7) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment (s).</p> <p>Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.</p> <p>Opening the compartment door will automatically turn the compartment lighting on.</p>  |
| 0085922 | Switch, Compt Light, Magnetic IPO<br>Std, Lap Door                                   | <p><b>SWITCH, COMPARTMENT LIGHTS</b></p> <p>The compartment light switches will be magnetic switching as used on the roll-up doors. ten (10).</p>  |
| 0687135 | Shelf Tracks, Unpainted  | <p><b>MOUNTING TRACKS</b></p> <p>There will be six (6) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1, RS3 and B1. These tracks will be installed vertically to support the adjustable shelf(s), and will be full height of the compartment. The tracks will be unpainted with a natural finish.</p>   |
| 0625835 | Shelves, Adjustable, 500 lb Capacity,<br>Full Width/Depth, Special Side Height       | <p><b>ADJUSTABLE SHELVES</b></p> <p>There will be ten (10) shelves with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum painted spatter gray. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.</p> <p>The shelves will be held in place by .12" thick stamped plated brackets and bolts.</p> <p>The location will be (3) LS1 (2 upper, 1 lower), (1) LS2, (1) LS3 upper, (2) RS1 upper, (2) RS3 and (1) B1.</p> <p>The side height of the shelf/shelves will be as follows:<br/> Front: 2.00" high<br/> Rear: 2.00" high<br/> Left &amp; Right Sides: 2.00" high</p>  |

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| 0709690 | Tray, 250 lb Slide-out, 2" Sides - Adj. Height, Predefined Locations          | <p><b>SLIDE-OUT ADJUSTABLE HEIGHT TRAY</b><br/> There will be one (1) slide-out tray provided.<br/> Each tray will have 2.00" high sides and a minimum capacity rating of 250 lb in the extended position.<br/> Each tray will be constructed of aluminum painted spatter gray.<br/> Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location.<br/> An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand.<br/> The location(s) will be in LS3 in the lower third</p>   |
| 0647045 | Tray, Floor Mounted, Slide-Out, Full Width/Full Depth, 500lb, 2.00" Sides, 2G | <p><b>SLIDE-OUT FLOOR MOUNTED TRAY</b><br/> There will be four (4) floor mounted slide-out tray(s) with 2.00" sides provided (1) LS1, (1) LS3, (1) RS1 and (1) B1. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of a minimum .13" aluminum. The finish will be painted spatter gray.<br/> The trays will be designed for maximum compartment width and depth.<br/> There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.<br/> To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.<br/> To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition.<br/> Proof of compliance will be provided upon request.<br/> Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.</p> |
| 0028026 | Matting, Turtle Tile, Compt Shelving only                                     | <p><b>MATTING, COMPARTMENT SHELVING</b><br/> Turtle Tile compartment matting will be provided in 15 shelves. The locations are, all shelves and trays.<br/> The color of the Turtle Tile will be black.</p>   |
| 0659383 | Matting, Turtle Tile w/Ramp, Compt Floors                                     | <p><b>MATTING, COMPARTMENT FLOOR</b><br/> Turtle Tile compartment matting will be provided in two (2) compartments on the compartment floor. The locations are, LS2 and RS2.<br/> The Turtle Tile will be black and the leading edge of the matting will include the beveled edge.<br/> The beveled edge will be black .</p>  |
| 0024016 | Rub Rail, Aluminum Extruded, Side & Rear of Body                              | <p><b>RUB RAIL</b><br/> Bottom edge of the side and rear of the body compartments will be trimmed with a bright aluminum extruded rub rail.<br/> Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.<br/> The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.</p>   |
| 0784811 | Fender Crowns, Rear, Stainless, w/Removable Liner                             | <p><b>BODY FENDER CROWNS</b><br/> Polished stainless steel fender crowns will be provided around the rear wheel openings with a dielectric barrier will be provided between the fender crown and the fender sheet metal to prevent corrosion.<br/> The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting will be provided between the body and crown.<br/> <b>BODY FENDER LINER</b><br/> A painted fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.</p>  |
| 0519849 | Not Required, Hose, Hard Suction  | <p><b>HARD SUCTION HOSE</b><br/> Hard suction hose will not be required.</p>  |
| 0626229 | Handrails, Side Pump Panels, Per Print  | <p><b>HANDRAILS</b><br/> The handrails will be 1.25" diameter knurled aluminum to provide a positive gripping surface. Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.<br/> Drain holes will be provided in the bottom of all vertically mounted handrails.<br/> Handrails will be provided to meet NFPA 1901 section 15.8 requirements. The handrails will be installed as noted on the sales drawing.</p>   |
| 0004126 | Handrails, Beavertail, Standard   | <p><b>HANDRAILS</b><br/> One (1) vertical handrail will be located on each rear beavertail.</p>   |

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| 0004146 | Handrail, Rear, Below Hose Bed, Full Width                      | <b>HANDRAIL</b><br>One (1) full width horizontal handrail will be provided below the hose bed at the rear of the apparatus.  |
| 0004150 | Handrail, Extra - 15-20" Long                                   | <b>ADDITIONAL HANDRAIL</b><br>One (1) handrail will be mounted on top of the hose bed cover on the DS running front to rear as shown on the drawing.   |
| 0657651 | Compt, Air Bottle, Double, Full Width Door, Fender Panel        | <b>AIR BOTTLE STORAGE (Double)</b><br>A quantity of three (3) air bottle compartments, 15.25" wide x 7.75" tall x 26.00" deep, will be provided on the left side forward of the rear wheels, on the right side forward of the rear wheels and on the right side rearward of the rear wheels . A polished stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.<br>Inside the compartment, "W" shaped insert formed of composite materials will be provided.  |
| 0004225 | Ladder, 24' Duo-Safety 900A 2-Section                           | <b>EXTENSION LADDER</b><br>There will be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.   |
| 0004230 | Ladder, 14' Duo-Safety 775A Roof                                | <b>ROOF LADDER</b><br>There will be a 14' aluminum Duo-Safety Series 775-A roof ladder provided.   |
| 0550204 | Rack, Zico Quic-Lift, (3) Ladders                               | <b>LADDER RACK</b><br>There will be a quantity of three (3) ground ladders mounted above the right side of body compartments in a Zico Quic-Lift electric ladder lowering system. The ladder rack mounts will be powered by two (2), 12-volt electric actuators.<br>The electric controls will be located at the pump panel or in such a manner to allow the operator full view of the area in which the ladders will be lowered.<br>The electric actuator control will have a master switch and be interlocked to prevent operation should a compartment door, in the travel area of the ladder bracket, be in the open position.<br><b>LADDER RACK INTERLOCK AND NOT STOWED INDICATOR LIGHT</b><br>An interlock will be provided to prevent operation of the ladder rack unless the apparatus parking brake has been activated.<br>A steady red indicator light will be located on the cab instrument panel and illuminated when the ladder rack is not in the stowed position. The light will be labeled "Ladder Rack". In addition, the "Do Not Move Apparatus" light located in the cab will be activated when the ladder rack is not in the stowed position.<br><b>LIGHTS, FLASHING, LADDER RACK</b><br>Flashing amber lights facing the front and rear will be provided on the ladder rack and activated whenever the rack is in the down position. |
| 0507711 | Ladder, 10' Duo-Safety Folding 585A, w/Spl Mtg                  | <b>FOLDING LADDER</b><br>One (1) 10' aluminum Series 585-A Duo-Safety folding ladder will be provided. The folding ladder will be installed on the Zico ladder rack, mounted with an aluminum trough painted job color on the exterior and unpainted on the interior.<br>A Velcro® strap will be installed to hold the ladder in the trough.   |
| 0725033 | Backboard Storage, Compt w/Door, Bottom of 4-Way Hose Bed Cover | <b>BACKBOARD COMPARTMENT</b><br>One (1) backboard compartment will be mounted to the underside of the bright aluminum treadplate hose bed cover on the left side. The compartment(s) will be fabricated of bright aluminum treadplate and will have a bright aluminum treadplate drop-down door at the rear. The compartment(s) will be sized for a backboard 72.00" long x 18.00" wide x 3.00" high.  |
| 0602877 | Pike Pole, Pumper, Provided by Fire Department, NFPA 2016       | <b>PIKE POLE PROVIDED BY FIRE DEPARTMENT</b><br>NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 8 ft or longer pike pole mounted in a bracket fastened to the apparatus.<br>The pike pole is not on the apparatus as manufactured. The fire department will provide and mount the pike pole.<br>The pike pole(s) will be a Nupla 8' pike pole.   |
| 0602875 | Pike Pole, 6', Pumper, Provided by Fire Department, NFPA 2016   | <b>6' PIKE POLE PROVIDED BY FIRE DEPARTMENT</b><br>NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 6' pike pole or plaster hook mounted in a bracket fastened to the apparatus.<br>The pike pole is not on the apparatus as manufactured. The fire department will provide and mount the pike pole.<br>The pike pole(s) will be a Nupla 6' pike pole.  |

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| 0004361 | Tubes, Alum, Pike Pole Storage   | <p><b>PIKE POLE STORAGE</b><br/>Aluminum tubing will be used for the storage of two (2) pike poles and will be located on the top of the passenger side compartments. If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate will be provided.</p>  |
| 0784210 | SP Tubes, Alum, Long Tool Storage, 2.50" Diameter, Transverse Through Rear Compt | <p><b>LONG TOOL STORAGE</b><br/>Aluminum tubing will be used for the storage of one (1) long tool(s) and will be located transverse high as directed at pre-construction through the rear compartment. The tube will extend from the back wall of the right side rearward compartment to the back wall of the left side rearward compartment. The tube(s) will not extend into either side compartment. If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate will be provided. The diameter of the storage tubes will be 2.50".</p>   |
| 0785102 | Steps, Folding, Front of Body, Cargo Bed Access, w/LED, Trident                  | <p><b>FOLDING STEPS FRONT OF BODY</b><br/>Folding steps will be provided full height on the left side body compartments to provide access to the cargo bed. Steps will be spaced evenly on the sales drawing. Actual quantity may vary due to pump panel interferences but will meet the NFPA required maximum stepping height. The Trident steps will be bright finished, non-skid with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface.<br/>The step will incorporate an LED light to illuminate the stepping surface.<br/>The steps can be used as a hand hold with two openings wide enough for a gloved hand.</p>   |
| 0592994 | Steps, Folding, Rear of Body, w/LED, Trident                                     | <p><b>REAR FOLDING STEPS</b><br/>Bright finished, non-skid folding steps with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface will be provided at the rear. Each step will incorporate an LED light to illuminate the stepping surface. The steps can be used as a hand hold with two openings wide enough for a gloved hand.</p>  |
| 0724153 | Step, Folding - Extra, Body Only, w/LED, Trident                                 | <p>One (1) additional folding step will be located above bottom step already on PS rear body (mid list addition). The step(s) will be bright finished, non-skid with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface. Each step will incorporate an LED light to illuminate the stepping surface. The step(s) can be used as a hand hold with two openings wide enough for a gloved hand.</p>  |
| 0004425 | Pump, Waterous, CSU, 1500 GPM, Single Stage                                      | <p><b>PUMP</b><br/>Pump will be a Waterous CSU, 1500 gpm single (1) stage midship mounted centrifugal type. Pump will be the class "A" type.<br/>Pump will deliver the percentage of rated discharge at pressures indicated below:<br/>- 100% of rated capacity at 150 psi net pump pressure.<br/>- 70% of rated capacity at 200 psi net pump pressure.<br/>- 50% of rated capacity at 250 psi net pump pressure.<br/>Pump body will be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).<br/>Pump will be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.<br/>Pump case halves will be bolted together on a single horizontal face to minimize chance of leakage and facilitate ease of reassembly. No end flanges will be used.<br/>Discharge manifold of the pump will be cast as an integral part of the pump body assembly and will provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.<br/>The three (3) 3.50" openings will be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.<br/>Impeller shaft will be stainless steel, accurately ground to size. It will be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller will have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.<br/>Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used.</p> |
| 0004481 | Seal, Grafoil, Waterous  | <p><b>PUMP PACKING</b><br/>Stuffing boxes will be of the conventional two (2) piece, split-gland type, to permit adjustment or replacement of Grafoil packing without disturbing the pump. Water will be fed into stuffing box lantern rings for proper lubrication and cooling when the pump is operating.<br/>Lantern rings will be located at the inner ends of the stuffing boxes, to avoid having to remove them when replacing pump packing.<br/>Wear rings will be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.</p>  |
| 0559769 | Trans, Pump, Waterous C20 Series   | <p><b>PUMP TRANSMISSION</b><br/>The pump transmission will be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump will be through a high strength Morse HY-VO silent drive chain. By the use of a chain rather than gears, 50% of the sprocket will be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work.<br/>Drive shafts will be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case will be designed to eliminate the need for water cooling.</p>  |

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| 0635600 | Pumping Mode, Stationary Only   | <p><b>PUMPING MODE</b><br/>An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system will be designed to allow stationary pumping only.</p>  |
| 0605126 | Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous                | <p><b>AIR PUMP SHIFT</b><br/>Pump shift engagement will be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A manual back-up shift control will also be located on the left side pump panel.<br/>Two (2) indicator lights will be provided adjacent to the pump shift inside the cab. One (1) green light will indicate the pump shift has been completed and be labeled "pump engaged". The second green light will indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light will be labeled "OK to pump".<br/>The pump shift will be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.<br/>The pump shift control in the cab will be illuminated to meet NFPA requirements.</p> |
| 0003148 | Transmission Lock-up, EVS   | <p><b>TRANSMISSION LOCK-UP</b><br/>The direct gear transmission lock-up for the fire pump operation will engage automatically when the pump shift control in the cab is activated.</p>  |
| 0004547 | Auxiliary Cooling System  | <p><b>AUXILIARY COOLING SYSTEM</b><br/>A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be a separate unit. The heat exchanger will be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger will be plumbed to the master drain valve.</p>   |
| 0014486 | Not Required, Transfer Valve, Stage Pump  |   |
| 0746511 | Valve, Relief Intake, TFT   | <p><b>INTAKE RELIEF VALVE</b><br/>A Task Force Tips A18 series relief valve will be installed on the suction side of the pump preset at 125 psig .<br/>The relief valve will have a working range of 90 psi to 300 psi.<br/>The pressure relief valve control will be located behind an access door at the right side pump panel.<br/>The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.</p>  |
| 0564941 | Controller, Pressure, FRC, Pump Boss, PBA200                                    | <p><b>PRESSURE CONTROLLER</b><br/>A Fire Research Pump Boss Model PBA200 pressure governor will be provided.<br/>A pressure transducer will be installed in the water discharge manifold on the pump.<br/>The display panel will be located at the pump operator's panel.</p>   |
| 0024543 | Primer, Hale, ESP Motor, (1) PVG Valve, (1) T-Handle Control, For An Other Pump | <p><b>ESP PRIMING PUMP</b><br/>Priming pump will be a positive displacement vane type, electrically driven, and conforming to standards outlined in NFPA pamphlet #1901.<br/>One (1) priming control will open the priming valve and start the priming motor.<br/>Primer will be environmentally safe and self lubricating.</p>   |
| 0044552 | Line, 0.50" Recirculating w/Check Valve   | <p><b>RECIRCULATING LINE WITH CHECK VALVE</b><br/>A 0.50" diameter recirculating line, from the pump to the water tank, will be furnished with a control installed at the pump operator's control panel. A check valve will be provided in this line to prevent the back flow of water from the tank to the pump if the valve is left in the open position.</p>   |
| 0780364 | Manuals, Pump, (2) Total, Electronic Copies                                     | <p><b>PUMP MANUALS</b><br/>There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.</p>   |



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| 0602512 | Plumbing, Stainless Steel and Hose, Single Stage Pump, Control Zone | <p><b>PLUMBING, STAINLESS STEEL AND HOSE</b></p> <p>All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.</p> <p>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.</p> <p>Plumbing manifold bodies will be ductile cast iron or stainless steel.</p> <p>All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.</p> <p>All water carrying gauge lines will be of flexible polypropylene tubing.</p> <p>All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.</p> |
| 0795135 | Plumbing, Stainless Steel, w/Foam System                            | <p><b>FOAM SYSTEM PLUMBING</b></p> <p>All piping that is in contact with the foam concentrate or foam/water solution will be stainless steel. The fittings will be stainless steel or brass. Cast iron pump manifolds will be allowed.</p>   |
| 0004645 | Inlets, 6.00" - 1250 GPM or Larger Pump                             | <p><b>MAIN PUMP INLETS</b></p> <p>A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.</p>  |
| 0004646 | Cap, Main Pump Inlet, Long Handle, NST, VLH                         | <p><b>MAIN PUMP INLET CAP</b></p> <p>The main pump inlets will have National Standard Threads with a long handle chrome cap. The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>   |
| 0084610 | Valves, Akron 8000 series- All                                      | <p><b>VALVES</b></p> <p>All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.</p> <p>Valves will have a <b>ten (10) year</b> warranty.</p>   |
| 0004660 | Inlet (1), Left Side, 2.50"   | <p><b>LEFT SIDE INLET</b></p> <p>There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</p>  |
| 0004680 | Inlet, Right Side, 2.50"  | <p><b>RIGHT SIDE INLET</b></p> <p>There will be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</p>  |
| 0016158 | Valve, Inlet(s) Recessed, Side Cntrl, "Control Zone"                | <p>The location of the valve for the two (2) inlets will be recessed behind the pump panel.</p>  |
| 0034720 | Anode, Zinc, Pair, Pump Inlets                                      | <p><b>ANODE, INLET</b></p> <p>A pair of sacrificial zinc anodes will be provided in the water pump inlets to protect the pump from corrosion.</p>  |
| 0004700 | Control, Inlet, at Valve  | <p><b>INLET CONTROL</b></p> <p>The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.</p>  |
| 0092569 | No Rear Inlet (Large Dia) Requested                                 |  |
| 0092696 | Not Required, Cap, Rear Inlet                                       |  |
| 0064116 | No Rear Inlet Actuation Required                                    |  |
| 0009648 | No Rear Intake Relief Valve Required on Rear Inlet                  |  |
| 0092568 | No Rear Auxiliary Inlet Requested                                   |  |

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| 0563738 | Valve, .75" Bleeder, Aux. Side Inlet, Swing Handle             | <p><b>INLET BLEEDER VALVE</b><br/> A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.</p>  |
| 0014751 | Tank to Pump, (1) 3.00" Valve, 3.00" Plumbing, Reverse Linkage | <p><b>TANK TO PUMP</b><br/> The booster tank will be connected to the intake side of the pump with heavy duty piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. The tank to pump line will run straight (no elbows) from the pump into the front face of the water tank and down into the tank sump. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.<br/> The control on the pump panel will be "in" when the valve is open and "out" when the valve is closed.<br/> A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p> |
| 0004905 | Outlet, Tank Fill, 1.50"                                       | <p><b>TANK REFILL</b><br/> A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p>  |
| 0004940 | Outlet, Left Side, 2.50"                                       | <p><b>LEFT SIDE DISCHARGE OUTLETS</b><br/> There will be Two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p>  |
| 0092570 | Not Required, Outlets, Left Side Additional                    |   |
| 0004945 | Outlet, Right Side, 2.50"                                      | <p><b>RIGHT SIDE DISCHARGE OUTLETS</b><br/> There will be Two (2) discharge outlets with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p>  |
| 0092571 | Not Required, Outlets, Right Side Additional                   |   |
| 0029137 | Not Required, Outlet, Large Diameter                           |   |
| 0649939 | Outlet, Front, 1.50" w/2" Plumbing                             | <p><b>FRONT DISCHARGE OUTLET</b><br/> There will be one (1) 1.50" discharge outlet piped to the front of the apparatus and located on the top of the left side of the front bumper.<br/> Plumbing will consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe will be used in the plumbing where appropriate. The piping will terminate with a 1.50" NST with 90 degree stainless steel swivel.<br/> There will be automatic drains provided at all low points of the piping.</p>  |
| 0004995 | Outlet, Rear, 2.50"  | <p><b>REAR DISCHARGE OUTLET</b><br/> There will be Two (2) discharge outlets piped to the rear of the hose bed, one (1) each side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.</p>   |
| 0092574 | Not Required, Outlet, Rear, Additional                         |   |
| 0092573 | Not Required, Outlet, Hose Bed/Running Board Tray              |   |
| 0752097 | Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Chain         | <p><b>DISCHARGE CAPS/ INLET PLUGS</b><br/> Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.<br/> Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.<br/> The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p>  |

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| 0563739 | Valve, 0.75" Bleeder, Discharges, Swing Handle                             | <p><b>OUTLET BLEEDER VALVE</b><br/> A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.<br/> The valves will be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.</p>  |
| 0005091 | Elbow, Left Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH          | <p><b>LEFT SIDE OUTLET ELBOWS</b><br/> The 2.50" discharge outlets located on the left side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.<br/> The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>   |
| 0035094 | Not Required, Elbow, Left Side Outlets, Additional                         |   |
| 0025091 | Elbow, Right Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH         | <p><b>RIGHT SIDE OUTLET ELBOWS</b><br/> The 2.50" discharge outlets located on the right side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.<br/> The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>   |
| 0089584 | Not Required, Elbow, Right Side Outlets, Additional                        |   |
| 0045091 | Elbow, Rear Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH               | <p><b>REAR OUTLET ELBOWS</b><br/> The 2.50" discharge outlets located at the rear of the apparatus will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.<br/> The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>   |
| 0085695 | Not Required, Elbow, Rear Outlets, Large, Additional                       |   |
| 0007308 | Not Required, Elbow, Large Diameter Outlet                                 |   |
| 0753328 | Outlet, 3.00" Deluge, Dual Control, LG HW's, w/TFT Extend-a-Gun XG18 riser | <p><b>DELUGE RISER</b><br/> A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel by a large handwheel control.<br/> <b>DUAL CONTROL</b><br/> There will be a second large handwheel control installed near the deluge outlet within easy reach of the deluge appliance operator.<br/> <b>TELESCOPIC PIPING</b><br/> The deluge riser piping will include a 18.00" Task Force Model XG18 Extend-A-Gun extension. This extension will be telescopic to allow the deluge gun to be raised 18.00" increasing the range of operation.<br/> A position sensor will be provided on the telescopic piping that will activate the "do not move vehicle" light inside the cab when the monitor is in the raised position.</p> |
| 0062133 | Control, Outlets, Manual, Pierce HW if applicable                          | <p><b>DISCHARGE OUTLET CONTROLS</b><br/> The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve. If a handwheel control valve is used, the control will be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built in to the center of the handwheel.<br/> Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 16.7.5.3.</p>  |
| 0029302 | No Monitor Requested   |   |
| 0029304 | No Nozzle Req'd  |   |
| 0005070 | Deluge Mount, NPT  | The deluge riser will have male National Pipe Threads for mounting the monitor.   |

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| 0723726 | Speedlay Module Not Required  |   |
| 0722473 | Hose Restraint Not Required, No Spdly Module                              |   |
| 0723395 | Speedlays, Not Required   |   |
| 0723394 | Speedlays, Not Required   |   |
| 0029167 | Crosslays Sngl Sheet Unpainted, (2+) 1.50", Std. Cap                      | <p><b>CROSSLAY HOSE BEDS</b></p> <p>Two (2) crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose and will be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.</p> <p>Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.</p> <p>The crosslay controls will be at the pump operator's panel.</p> <p>The center crosslay dividers will be fabricated of 0.25" aluminum and will provide adjustment from side to side. The divider will be unpainted with a brushed finish.</p> <p>Vertical scuffplates constructed of stainless steel will be provided at the front and rear ends of the bed on each side of vehicle.</p> <p>Crosslay bed flooring will consist of removable perforated brushed aluminum.</p> |
| 0029196 | Not Required, 2.50" Crosslay  |   |
| 0029260 | Not Required, Speedlays   |   |
| 0591138 | Hose Restraint, Crosslay/Deadlay, Vinyl, Strap Fasteners, Each Side, Ends | <p><b>CROSSLAY/DEADLAY HOSE RESTRAINT</b></p> <p>There will be black vinyl end flap provided across each end of two (2) crosslay/deadlay opening (s) to secure the hose during travel. Each vinyl end flap will be permanently attached at the top of the crosslay/deadlay opening(s). 1.00" web straps will loop through footman loops at the opposite end of the permanently attached vinyl. They will be attached with spring clip and hook fasteners.</p>   |
| 0750536 | Hose Restr, Spdly, Not Required, No Spdly                                 |   |
| 0590877 | Hose Restraint, Crosslay/Deadlay, Aluminum Treadplate, Top Only           | <p><b>CROSSLAY/DEADLAY HOSE RESTRAINT</b></p> <p>An aluminum treadplate cover, hinged at the front will be installed over the top of the crosslay/deadlay(s). It will include a latch at each end of the cover to hold it securely in place, a chrome grab handle at each end for opening and closing the cover and a foam rubber gasket where the cover comes into contact to a painted surface. The cover will be provided with rubber latch hold open device.</p>  |
| 0005215 | Reel, Booster, Over Pump, Left Side, Steel                                | <p><b>BOOSTER HOSE REEL</b></p> <p>A Hannay electric rewind booster hose reel will be installed over the pump in a recessed open compartment on the left side of the apparatus.</p> <p>A polished stainless steel roller and guide assembly will be mounted on the reel side of the apparatus.</p> <p>Discharge control will be provided at the pump operator's panel. Plumbing to the reel will consist of 1.50" Aeroquip hose and a 1.50" valve</p> <p>The exterior finish of the reel will be painted #269 gray from the reel manufacturer.</p>  |
| 0005280 | Switches, Reel Rewind - (1) Each Pump Panel                               | <p>Reel motor will be protected from overload with a circuit breaker rated to match the motor.</p> <p>Two (2) electric rewind control switches will be provided, one (1) installed on each pump panel.</p>  |
| 0005300 | Hose, Booster - 150' of 1.00"/800 PSI                                     | <p>Booster hose, 1.00" diameter and 150 feet, with chrome plated Barway, or equal couplings will be provided.</p> <p>Working pressure of the booster hose will be a minimum of 800 psi.</p>   |
| 0017858 | Capacity, Hose Reel 150' of 1"  | <p>Capacity of the hose reel will be 150 feet of 1.00" booster hose.</p>  |
| 0007428 | Nozzle for Booster Reel Not Req'd   |   |
| 0622237 | Roller Assembly, Additional   | <p>There will be one (1) additional polished stainless steel roller and guide assembly mounted Install on the PS side pump house side sheet flange.</p>   |

**FOAM PROPORTIONER**

A Pierce Husky™ 12 foam proportioning system will be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically balance and proportion foam solution at rates from .1 percent to 9.9 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.

The design of the system will allow operation from draft, hydrant, or relay operation. This will provide a versatile system to meet the demands at a fire scene.

**System Capacity**

The system will have the ability to deliver the following minimum foam solution flow rates that meet or exceed NFPA requirements at a pump rating of 250 psi.

200 gpm @ 6 percent

400 gpm @ 3 percent

1200 gpm @ 1 percent

The foam concentrate setting may be adjusted in .1 percent increments from .1 percent to 9.9 percent. Typical settings are .3 percent, .5 percent and 1.0 percent (The maximum capacity will be limited to the plumbing and water pump capacity).

**Control System**

The system will be equipped with a digital electronic control display located on the pump operators panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, direct which foam to use on a multi-tank system, and to set the operation modes (automatic, manual, draft, calibration, or flush).

The percent of injection will have presets for Class A or Class B foam. These presets can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

In order to minimize the use of abbreviations and interpretations, system information will be displayed on the panel by way of .50 tall LEDs that total 14 characters (two (2) lines of seven (7) each). System on and foam pump on indicator lights will also be included. Information displayed will include mode of operation (automatic, manual, draft, calibration, or flush), foam supply selected (Class A or Class B), water total, foam total, foam percentage, remaining gallons, and time remaining.

The control display will direct a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor will compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve will be installed in the plumbing to prevent foam from contaminating the water pump.

**Low Level Foam Tank**

The control head will display a warning message when the foam tank in use is below a quarter tank.

**Hydraulic Drive System**

The foam concentrate pump will be powered by a hydraulic drive system, which is automatically activated, whenever the vehicle water pump is engaged. A large parasitic electric load used to power the foam pump can cause an overload of the chassis electrical system.

Hydraulic oil cooler will be provided to automatically prevent overheating of the hydraulic oil, which is detrimental to system components. The oil/water cooler will be designed to allow continuous system operation without allowing hydraulic oil temperature to exceed the oil specifications.

The hydraulic oil reservoir will be of four (4) gallons minimum capacity and will also be of sufficient size to minimize foaming and be located to facilitate checking oil level or adding oil without spillage or the need to remove access panels.

**Foam Concentrate Pump**

The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic motor. The pump will be constructed of brass body; chrome plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum will be present in its construction.

A relief system will be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump will have minimum capacity for 12 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system will deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

**External Foam Concentrate Connection**

An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty. The external foam pick-up will be designed to allow use with training foam or colored water for training purposes.

**Panel Mounted Strainer / External Pick-Up Connection**

A bronze body strainer / connector unit will be provided. The unit will be mounted to the pump panel. The external foam pick-up will be one (1) 1.00" male connection with chrome-plated cap integrated to a 2.00" strainer cleanout cap. A check valve will be installed in the pick-up portion of the cleanout cap. A basket style stainless steel screen will be installed in the body of the strainer / connector unit. Removal of the 2.00" cleanout cap will be all that is required to gain access to and remove the stainless steel basket screen. The strainer / connector unit will be ahead of the foam concentrate pump inlet port to insure that all agents reaching the foam pump has been strained.

**Pick-Up Hose**

A 1.00" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 1.00" female swivel NST thread swivel connector. The hose will be shipped loose.

**Discharges**

The foam system will be plumbed to five (5) discharges. The discharges capable of dispensing foam will be front bumper, two crosslays, booster reel, rear passenger's 2.50" discharge.

**System Electrical Load**

The foam proportioning will not impose an electrical load on the vehicle electrical system any greater than five (5) amps at 12VDC.

**Foam Supply Valve**

An electric valve will be used for the foam supply valve. The foam supply valve will be controlled at the foam system control head for ease of operation. The supply valve will be electric, remote controlled, to eliminate air pockets in the foam tank supply hose.

**Maintenance Message**

A message will be displayed on the control head to advise when system maintenance needs to be performed. The message will display interval for cleaning the foam strainer, cleaning for the water strainers, and changing the hydraulic oil.

**Flush System**

The system will be designed such that a flush mode will be provided to allow the system to flush all foam concentrate with clear water. The flush circuit control logic will ensure the foam tank supply valve is closed prior to opening the flush valve. The flush valve will be operated at the foam system control head for ease of operation. The valve will be electrically controlled and located as close to the foam tank supply valve as possible. A manual flush drain valve will be labeled and located under the left side running board.

0012126 Not Required, CAF Compressor

0552481 Refill, Foam Tank, Single Tank, Husky 12, Class A Foam

**SINGLE FOAM TANK REFILL**

The foam system's proportioning pump will be used to fill the Class A foam tank. This will allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller stating TANK FILL. While the proportioner pump is filling the tank, the controller will display FILL TANK. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will display TANK FULL.

0031896 Demonstration, Foam System, Dealer Provided

0041377 Foam Cell, 25 Gallon, Reduce Water

**FOAM TANK**

The foam tank will be an integral portion of the polypropylene water tank. The cell will have a capacity of 25 gallons of foam with the intended use of Class A foam. The foam cell will reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid.

0505016 Drain, 1.00", Foam Tank #1, Husky 12 Foam System

**FOAM TANK DRAIN**

A system of 1.00" foam tank drains will be provided, integrated into the foam systems strainer and tank to foam pump valve management system. The tank to pump hoses running from the tank(s) to the panel mounted strainer will 1.00" diameter. The foam system controller will have a mode that allows for a given foam valve to be opened at will. Flow of foam from the tank valve to the strainer will be usable as a tank drain mode.

An adaptor will be supplied, that allows the 1.00" foam intake screen to assembly to be used as a drain outlet. The standard supplied 1.00" foam pick up hose will be attached to the screen assembly by way of the adapter. The drain mode will allow the operator to open and close the tank valve as required from the control head, to drain foam and re-fill foam containers through the connected hose, without foam spillage beneath the vehicle.

0091079 Not Required, Foam Tank #2

0091112 Not Required, Foam Tank #2 Drain

The following drawing(s) will be provided for approval by the customer. The drawing(s) will be made for up One (01) Truck apparatus and/or similar Pierce job number.

**PUMP OPERATOR'S PANEL DRAWING**

A detailed drawing to scale of the pump operator's panel will be provided for the customer to review. The drawing will include all of the gauges, controls, switching, etc., located on the pump operator's panel. The customer will be allowed to make changes and/or mark-ups to this approval drawing. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump operator's panel drawing will become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

**REMAINING PUMP PANEL(S)**

Detailed drawing(s) to scale of the remaining pump panel(s) will be provided for the customer to review. The drawing(s) will include all of the gauges, controls, switching, etc., located on the pump panel(s). The customer will be allowed to make changes and/or mark-ups to these approval drawing(s). The fire apparatus manufacturer will make revisions (If needed) to the drawing(s) per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump panel drawing(s) will become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

**COLOR CODED TAGS**

A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the colors will become part of the contract documents.

**SPECIAL TEXT/VERBIAGE TAGS**

A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the text/verbiage will become part of the contract documents.

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| 0007590 | Pump House, Side Control, 52", Control Zone                                      | <p><b>PUMP COMPARTMENT</b><br/>The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. It will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.<br/>The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.<br/>Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.</p> <p><b>PUMP MOUNTING</b><br/>Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump.</p> <p><b>LEFT SIDE PUMP CONTROL PANELS</b><br/>All pump controls and gauges will be located at the left side of the apparatus and properly identified.<br/>Layout of the pump control panel will be ergonomically efficient and systematically organized. The pump operator's control panel will be removable in two (2) main sections for ease of maintenance:<br/>The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges.<br/>The lower section of the panel will contain all inlets, outlets, and drains.<br/>All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.</p> <p><b>IDENTIFICATION TAGS</b><br/>The identification tag for each valve control will be recessed in the face of the tee handle. All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge.<br/>All line pressure gauges will be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag.<br/>All remaining identification tags will be mounted on the pump panel in chrome plated bezels. The pump panel on the right side will be removable with lift and turn type fasteners. Trim rings will be installed around all inlets and outlets. The trim rings for the side discharge outlets will be color coded and labeled to correspond with the discharge identification tag.</p> |
| 0032479 | Pump Panel Configuration, Control Zone   | <p><b>PUMP PANEL CONFIGURATION</b><br/>The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.</p>   |
| 0005525 | Material, Pump Panels, Side Control Brushed Stainless                            | <p><b>PUMP AND GAUGE PANEL</b><br/>The pump and gauge panels will be constructed of stainless steel with a brushed finish. A polished aluminum trim molding will be provided on both sides of the pump panel.</p>  |
| 0005578 | Panel, Pump Access - Right Side Only   | <p>The right side pump panel will be removable and fastened with swell type fasteners.</p>   |
| 0035501 | Pump House Structure, Std Height   |  |
| 0005945 | Light, Pump Compt  | <p><b>PUMP COMPARTMENT LIGHT</b><br/>A pump compartment light will be provided inside the right side pump enclosure and accessible through a door on the pump panel.<br/>A .125" weep hole will be provided in each light lens, preventing moisture retention.</p>   |
| 0586382 | Gauges, Engine, Included With Pressure Controller                                | <p>Engine monitoring graduated LED indicators will be incorporated with the pressure controller. Also provided at the pump panel will be the following:<br/>- Master Pump Drain Control</p>  |
| 0005601 | Throttle, Engine, Incl'd w/Press Controller                                      |  |
| 0739224 | Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle,Green | <p><b>THROTTLE READY GREEN INDICATOR LIGHT</b><br/>There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.</p>   |
| 0549333 | Indicators, Engine, Included with Pressure Controller                            |  |



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| 0745568 | Indicator Light, Pump Panel, Ok To Pump, Green                              | <p><b>OK TO PUMP INDICATOR LIGHT</b><br/>There will be a green indicator light installed on the pump operators panel that is activated when the pump is in Ok To Pump mode.</p>   |
| 0005780 | Control, Air Horn At Pmp Pnl, Button  | <p><b>AIR HORN BUTTON</b><br/>An air horn control button will be provided at the pump operator's control panel. This button will be properly labeled and put within easy reach of the operator.</p>   |
| 0007518 | Drains, Above Running Boards, LS & RS                                       | <p><b>DRAINS, ABOVE RUNNING BOARDS, LS &amp; RS</b><br/>Both the left side and right side drains will be installed above the running boards, on the pump panels.</p>  |
| 0673431 | Switch w/Ind, Pump Panel for Warning Light, 12 VDC                          | <p>There will be a switch at the pump operators panel that can deactivate the warning light in that vicinity.<br/>This switch will only be active when the parking brake is applied and the pump is shifted into gear.</p>  |
| 0511078 | Gauges, 4.00" Master, Class 1, 30"-0-600psi                                 | <p><b>VACUUM AND PRESSURE GAUGES</b><br/>The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.<br/>The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#. Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.<br/>The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.<br/>Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.<br/>This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p>  |
| 0511100 | Gauge, 2.00" Pressure, Class 1, 30"-0-400psi                                | <p><b>PRESSURE GAUGES</b><br/>The individual "line" pressure gauges for the discharges will be Class 1© interlube filled. They will be a minimum of 2.00" in diameter and have white faces with black lettering. Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.<br/>Gauges will have a pressure range of 30"-0-400#. The individual pressure gauge will be installed as close to the outlet control as practical. This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p>   |
| 0604123 | Gauge, Water Level, FRC, WLA 300-A00, TankVision Pro, w/Remote Light Driver | <p><b>WATER LEVEL GAUGE</b><br/>A Fire Research TankVision Pro model WLA300-A00 water tank indicator gauge shall be installed on the pump operators panel. The gauge kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The gauge shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The gauge case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.<br/>The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank and down chasing LEDs when the tank is almost empty.<br/>The gauge shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.</p> <p><b>REMOTE LIGHT DRIVER</b><br/>A Fire Research TankVision model WLA290-A00 remote light driver shall be installed. The driver shall provide four (4) separate outputs to control additional water level lights around the apparatus. The lights shall show 1/4, 1/2, 3/4, and full tank. When power is applied the driver shall run a test and cycle each remote light on and off. When the tank is less than 1/4 full the 1/4 tank light shall blink.</p> |
| 0084763 | Gauge, Ernst Sight Water Level, w/Red Ball, IATS                            | <p><b>WATER LEVEL GAUGE, ADDITIONAL</b><br/>An additional water level gauge will be provided. An Ernst sight tube water level indicator with a floating red ball will be mounted on the gauge panel with an unrestricted view for the operator.</p>   |

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| 0750438 | Water Level Gauge, WIn PSTANK2, LED 1-Light, 4-Level                        | <p><b>WATER LEVEL GAUGE</b></p> <p>There will be two (2) additional water level indicator(s), Whelen®, Model PSTANK2, LED module with chrome trim, installed one (1) each side rearward of crew cab doors.</p> <p>This light module(s) will include four (4) colored levels, and function similar to the water level indicator located at the operators panel:</p> <p>First green module indicates a full water level</p> <p>Second blue module indicates a water level above 3/4 full</p> <p>Third amber module indicates a water level above 1/2 full</p> <p>Last red module indicates a water level above 1/4 full and empty</p> <p>Above 1/4 this light will be steady burning</p> <p>At empty this light will be flashing</p> <p>The flash rate will be determined by the main water level tank sensor.</p> <p>This module will be activated when the pump is in gear.</p>  |
| 0062992 | Gauge, Foam Level, (1) Tank, Class 1, GAAAR 5t                              | <p><b>FOAM LEVEL GAUGE</b></p> <p>An electronic foam level gauge will be provided on the operator's panel that registers foam level by means of five (5) colored LED lights. The lights will be durable, ultra-bright five (5) LED design viewable through 180 degrees. The foam level indicators will be as follows:</p> <p>100 percent = Green</p> <p>75 percent = Yellow</p> <p>50 percent = Yellow</p> <p>25 percent = Yellow</p> <p>Refill = Red</p> <p>The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the foam tank is empty.</p> <p>The level measurement will be based on the sensing of head pressure of the fluid in the tank. The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from foam and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The display will be able to be calibrated in the field and will measure head pressure to accurately show the tank level.</p> |
| 0593161 | Light Shield, S/S LED   | <p><b>LIGHT SHIELD</b></p> <p>There will be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel.</p> <p>There will be 12 volt DC white LED lights installed under the stainless steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.</p> <p>One (1) pump panel light will come on when the pump is in ok to pump mode.</p> <p>There will be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.</p>   |
| 0003930 | Microphone & Speaker w/Plain Door - Pump Operator's Position, Body Bulkhead | <p><b>MICROPHONE AND SPEAKER COMPARTMENT</b></p> <p>A microphone and speaker compartment with a polished stainless steel door will be furnished adjacent to the pump operator's panel. The compartment size will be 12.00" high x 9.00" wide x 6.00" deep.</p>   |
| 0006051 | Air Horn, (1) Grover, In Bumper   | <p><b>AIR HORN SYSTEM</b></p> <p>One (1) Grover air horn will be recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air, in the brake system.</p>   |
| 0606842 | Location, Air Horn, Bumper, Right Side, Outside Frame, Inboard (Pos #2)     | <p><b>Air Horn Location</b></p> <p>The air horn will be located on the right side of the bumper, just outside of the frame rail.</p>   |
| 0006064 | Control, Air Horn, DS & PS Foot Sw  | <p><b>AIR HORN CONTROL</b></p> <p>The air horns will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.</p>   |
| 0533071 | Siren, WIn 295SLSC1, 100 or 200 Watt, w/Plug-in/Detachable Microphone Cord  | <p><b>ELECTRONIC SIREN</b></p> <p>A Whelen, Model: 295SLSC1, electronic siren with a plug-in, detachable noise canceling microphone will be provided.</p> <p>This siren to be active when the battery switch is on and that emergency master switch is on.</p>   |
| 0510206 | Location, Elect Siren, Recessed Overhead In Console                         | <p>Electronic siren head will be recessed in the driver side inside switch panel.</p>  |
| 0076156 | Control, Elec Siren, Head Only  | <p>The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.</p>   |

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| 0601306 | Speaker, (1) Wln, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt | <b>SPEAKER</b><br>There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.  |
| 0601565 | Location, Speaker, Frt Bumper, Recessed, Center (Pos 4)                      | The speaker(s) will be recessed in the center of the front bumper.   |
| 0727491 | Siren, Federal Q2B, Solenoid Supply RS Bat Dir                               | <b>AUXILIARY MECHANICAL SIREN</b><br>There will be a Federal Signal Model Q2B mechanical siren furnished on the front of the apparatus.<br>The siren will have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the right side chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on.<br>The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery.<br>Additional customer selectable controls will be included for the momentary activation of this siren.   |
| 0006097 | Location of Siren, Recessed in Bumper  | The mechanical siren will be recessed in the front bumper on the left side. The siren will be properly supported using the bumper framework.   |
| 0026163 | Control, Mech Siren, DS & PS Foot Sw   | The mechanical siren will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.  |
| 0740391 | Sw, Siren Brake, Momentary Chrome Push Button, RS                            | A momentary chrome push button switch will be included in the right side dash panel to activate the siren brake.   |
| 0736164 | Sw, Siren Brake, Momentary, LS Overhead Sw Pnl                               | A momentary switch will be included in the left side overhead switch panel to activate the siren brake.  |
| 0693597 | Microphone Extension, Wln Model CCMICX20, 20'                                | <b>SIREN MICROPHONE EXTENSION</b><br>There will be a Whelen®, Model CCMICX20, 20 foot microphone extension provided.   |
| 0746353 | Not Required, Warning Lights Intensity                                       |  |
| 0780277 | SP Lightbar, Wln, Freedom IV-Q, 81", RRRRWRsrRStrsrRWRRRR                    | <b>FRONT ZONE UPPER WARNING LIGHTS</b><br>There will be one (1) 81.00" Whelen® Freedom™ IV lightbar mounted on the cab roof. The lightbar will include the following:<br>One (1) red flashing LED module in the driver's side end position.<br>One (1) red flashing LED module in the driver's side front corner position.<br>One (1) red flashing LED module in the driver's side first front position.<br>One (1) red flashing LED module in the driver's side second front position.<br>One (1) white flashing LED module in the driver's side third front position.<br>One (1) red flashing LED module in the driver's side fourth front position.<br>One (1) red steady burning LED module in the driver's side fifth front position.<br>One (1) red flashing LED module in the driver's side sixth front position.<br>One (1) strobe traffic light controller in the center positions.<br>One (1) red flashing LED module in the passenger's side sixth front position.<br>One (1) red steady burning LED module in the passenger's side fifth front position.<br>One (1) red flashing LED module in the passenger's side fourth front position.<br>One (1) white flashing LED module in the passenger's side third front position.<br>One (1) red flashing LED module in the passenger's side second front position.<br>One (1) red flashing LED module in the passenger's side first front position.<br>One (1) red flashing LED module in the passenger's side front corner position.<br>One (1) red flashing LED module in the passenger's side end position.<br>There will be clear lenses and colored filters included on the lightbar.<br>The following switches may be installed in the cab on the switch panel to control the lightbar:<br>a switch to control the flashing LED modules.<br>the traffic light controller by a cab switch with emergency master control.<br>no momentary switch to activate the traffic light controller.<br>The two (2) white LED flashing modules and the traffic light controller will be disabled when the parking brake is applied.<br>The eight (8) red flashing LED modules in the front positions may be load managed when the parking brake is applied. |
| 0790846 | Power Supply, Wln PE215 Traffic Light Controller, Single Strobe Tube         | <b>POWER SUPPLY, STROBE</b><br>There will be one (1) Whelen®, Model PE215 strobe power supply set to national standard high priority provided in the apparatus to power the traffic light controller strobe tube.<br>The power supply will be controlled by a cab switch with emergency master control.<br>There will be no momentary switch to activate the traffic light controller.<br>Power to this power supply will be deactivated when the parking brake is applied.  |

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| 0540439 | Light, Front Zone, WIn M6* LED, Colored Lens 2Lts                             | <b>WARNING LIGHTS (Cab Face)</b><br>Two (2) Whelen model M6* LED flashing warning lights with chrome flange will be provided on the front of the cab above the headlights.<br>The driver's side front warning light to be red.<br>The passenger's side front warning light to be red.<br>Both lights will include a lens that is the same color as the LED's.<br>There will be a switch located in the cab, on the switch panel, to control the lights.   |
| 0558676 | Daytime Running Lights, Headlights, Qtm, Vel/Imp, Enf/AXT-MUX, DCF (Low Beam) | <b>DAYTIME RUNNING LIGHTS (HEADLIGHTS)</b><br>The low-beam headlights used as daytime running lights will be activated with the following measures:<br>Ignition switch is turned on<br>Parking brake is released<br>These lights will be deactivated with any one of the following measures:<br>Headlight switch is turned on<br>High-beam flash is turned on<br>Parking brake is set   |
| 0622771 | SP Flasher, Headlight Alternating, Special Switching                          | <b>HEADLIGHT FLASHER</b><br>The high beam headlights will flash alternately between the left and right side.<br>High beam flash will be activated when ever the E-Master is on.<br>There will be an override switch installed in the cab for the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.<br>The flashing will automatically cancel when high beam headlights are on or when the parking brake is set.   |
| 0747228 | Lights, Side Zone Lower, WIn M6**, M6**, M6**, 6Lts                           | <b>SIDE ZONE LOWER LIGHTING</b><br>There will be six (6) Whelen®, Model M6**, 4.31" high x 6.75" long x 1.37" deep flashing LED warning lights with chrome trim installed per the following:<br>Two (2) lights located, one (1) each side on the bumper extension. The driver's side, side front light to include red warning LEDs and the passenger's side, side front light to include red warning LEDs.<br>Two (2) lights located, one (1) each side of cab rearward of crew cab doors. The driver's side, side middle light to include red warning LEDs and the passenger's side, side middle light to include red warning LEDs.<br>Two (2) lights located, one (1) each side above rear wheels. The driver's side, side rear light to include red warning LEDs and the passenger's side, side rear light to include red warning LEDs.<br>The warning light lens colors to be the same as the LEDs.<br>There will be a switch in the cab on the switch panel to control the lights. |
| 0540766 | Lights, Side, WIn M6* LED, Colored Lens, 1st                                  | <b>SIDE WARNING LIGHTS</b><br>There will be two (2) Whelen, Model M6* LED flashing warning light(s) with bezel(s) provided one (1) each side of the cab in the raised roof portion aft of the crew cab door up high.<br>The color of the lights will be red.<br>All of these lights will include a lens color that is the same as the LED's<br>These lights will be activated with the Side Zone Lower warning lights.  |
| 0564654 | Lights, Rear Zone Lower, WIn M6* LED, Colored Lens, For Tail Light Housing    | <b>REAR ZONE LOWER LIGHTING</b><br>There will be two (2) Whelen®, Model M6*, LED flashing warning lights will be located at the rear of the apparatus.<br>The driver's side rear light to be red<br>The passenger's side rear light to be red<br>Both lights will include a lens that is the same color as the LED's.<br>There will be a switch located in the cab on the switch panel to control the lights.   |
| 0591872 | Light, Rear Zone Upper, WIn B6MLRZP, LED/LED Rear Scene                       | <b>REAR OF HOSEBED WARNING LIGHTS</b><br>There will be two (2) Whelen, Model B6MLRZP, combination LED beacon and LED scene light provided at the rear of the truck, one (1) each side.<br>Each beacon will contain flashing LED warning light in a 360 degree arrangement and a LED scene light mounted in a polished aluminum housing.<br>The LED beacons will be red on the passenger side and amber on the driver side with driver side dome amber and passenger side dome red.<br>These beacons will be mounted so that the scene lights face to the rear.<br>There will be two (2) switches provided to activate these lights<br>One (1) switch in the cab will control both beacons.<br>One (1) switch in the cab will control both rear facing scene lights.<br>The scene lights may be load managed when the parking brake is set.  |
| 0006551 | Not Required, Lights, Rear Upper Zone Blocking                                |   |
| 0056610 | Mtg, Rear Warn Lts, Low Mount, S/S brkts                                      | The rear warning lights will be mounted on stainless steel brackets with all wiring totally enclosed. These brackets will also support the clearance/marker lights. The rear deck lights will be mounted on the beavertail flange to keep the overall height as low as possible.  |

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| 0791528 | Light, Traffic Directing, Wln TAL65, 36.00" Long, TACTL5   | <p><b>TRAFFIC DIRECTING LIGHT</b></p> <p>There will be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.</p> <p>The Whelen, Model TACTL5, control head will be included with this installation.</p> <p>The controller will be energized when the battery switch is on.</p> <p>The auxiliary flash to be activated when the emergency master switch is on.</p>   |
| 0580621 | Location, Traf Dir Lt, Recessed Into Rear Wall             | This traffic directing light will be recessed at the rear of the apparatus as high as practical.   |
| 0530281 | Location, Traf Dir Lt Controller, Center Console in Sw Pnl | The traffic directing light controller will be located within the switch panel on the center console. The controller will be within easy reach of the driver.  |
| 0006646 | Electrical System, 120/240VAC, General Design              | <p><b>ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT</b></p> <p>The following guidelines will apply to the 120/240 VAC system installation:</p> <p><b>General</b></p> <p>Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles.</p> <p>Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</p> <p>Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.</p> <p><b>Grounding</b></p> <p>Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.</p> <p>An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.</p> <p>The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.</p> <p>In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used.</p> <p>All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.</p> <p><b>Operation</b></p> <p>Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.</p> <p>Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.</p> <p>A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information:</p> <p>Rated voltage(s) and type (ac or dc)</p> <p>Phase</p> <p>Rated frequency</p> <p>Rated amperage</p> <p>Continuous rated watts</p> <p>Power source engine speed</p> <p>Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.</p> <p><b>Overcurrent protection</b></p> <p>The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length. For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).</p> <p>For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).</p> <p><b>Wiring Methods</b></p> <p>Fixed wiring systems will be limited to the following:</p> <p>Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)</p> <p>or</p> <p>Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)</p> <p>Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows.</p> <p>Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping</p> <p>Separated from fuel lines by a minimum of 6.00" (152 mm) distance</p> <p>Electrical cord or conduit will be supported within 6.00" (152 mm) of any junction box and at a</p> |

minimum of every 24.00" (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

**Wiring Identification**

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

**Wet Locations**

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground.

Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

**Dry Locations**

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height.

All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.

**Listing**

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

**Electrical System Testing**

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

**Operational Test per Current NFPA 1901 Standard**

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by an independent third-party certification organization.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard will be applied to the low voltage electrical system during the operational test.

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| 0529594 | Generator, Harrison 6kW, 6.0MAS-16R/D-11011/15/1, Hydraulic, Hotshift PTO | <b>GENERATOR</b><br>The apparatus will be equipped with a complete AC (alternating current) electrical power system. The generator will be a Harrison Model 6.0MAS-16R/D-11011/15/1, 6,000 watt hydraulic driven unit.<br>The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.<br>The hydraulic engagement supply will be operational at any time (no interlocks).<br>An electric/hydraulic valve will supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.<br><u>Generator Instruments and Controls</u><br>To properly monitor the generator performance a digital meter panel will be furnished and mounted near the circuit breaker panel. |
| 0006645 | Location, Hydraulic Generator Above Pump                                  | <b>GENERATOR LOCATION</b><br>The generator will be mounted in the in the area over the pump on the right side. The flooring in this area will be either reinforced or constructed in such a manner that it will handle the additional weight of the generator.  |
| 0016752 | Starting Sw, Truck Engine Powered Gen, Cab Sw Pnl                         | <b>GENERATOR START</b><br>There will be a switch provided on the cab instrument panel to engage the generator.  |
| 0016757 | Not Required, Remote Start, Generator                                     |   |
| 0016740 | Not Required, Fuel System   |   |
| 0016767 | Not Required, Oil Drain Extension, Generator                              |   |

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| 0016771 | Not Required, Routing Exhaust, Generator                          |   |
| 0036738 | Circuit Breaker Panel, Included With PTO Generator                | <b>CIRCUIT BREAKER PANEL</b><br>The circuit breaker panel will be located high left on the back wall of compartment LS3.  |
| 0076826 | Cup Holder for Telescopic - Pushup - Light Pole                   | <b>CUP HOLDER</b><br>A cup holder will be provided for the Two (2) to securely hold the push-up pole in place while in the lower position.  |
| 0688136 | Light, FRC, 120V, SPA530-K20 LED Floodlt, Push Up, Side Mount 1st | <b>120 VOLT LIGHTING</b><br>There will be One (1) Fire Research Spectra, Model SPA530-K20, 120 volt AC LED scene light(s) provided on push up, side mount pole(s) located driver's side rear of the cab with the top of the lighthouse no higher than the top of the roof line AND ALSO positioned so that the lighthouse does NOT protrude past the side of the cab.<br>The light(s) selected above will be controlled by the circuit breaker included in the AC breaker panel as well as following:<br>a switch at the driver's side switch panel<br>a switch at the pump operator's panel<br>no additional switch location<br>no additional switch location<br>These lights will be connected.     |
| 0677256 | Light, FRC, 120V, SPA530-K20 LED Floodlt, Push Up, Side Mount 2nd | <b>120 VOLT LIGHTING</b><br>There will be One (1) Fire Research Spectra, Model SPA530-K20, 120 volt AC. LED scene light(s) provided on push up, side mount pole(s) located passenger's side rear of the cab with the top of the lighthouse no higher than the top of the roof line AND ALSO positioned so that the lighthouse does NOT protrude past the side of the cab.<br>The light(s) selected above will be controlled by the circuit breaker included in the AC breaker panel as well as following:<br>a switch at the driver's side switch panel<br>a switch at the pump operator's panel<br>no additional switch location<br>no additional switch location<br>These lights will be connected. |
| 0006790 | Receptacle, 20A 120V 3-Pr 3-Wr TL, L5-20R Wtrprf                  | <b>120 VOLT RECEPTACLE</b><br>There will be three (3), 20 amp 120 volt AC three (3) wire twist lock receptacle(s) with waterproof flip up cover(s) installed one (1) each side of body in the fender area aft of the rear axle and one (1) at the rear to the right of the R1 compartment and below the folding step. The NEMA configuration for the receptacles will be L5-20R.<br>The receptacle(s) will be powered from the on board generator.<br>There will be a label installed near the receptacle(s) that state the following:<br>Line Voltage<br>Current Rating (amps)<br>Phase<br>Frequency   |
| 0519934 | Not Required, Brand, Hydraulic Tool System                        |   |
| 0007150 | Bag of Nuts and Bolts   | <b>LOOSE EQUIPMENT</b><br>The following equipment will be furnished with the completed unit:<br>One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.   |

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| 0602516 | NFPA Required Loose Equipment, Pumper, NFPA 2016, Provided by Fire Department     | <p><b>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</b><br/> The following loose equipment as outlined in NFPA 1901, 2016 edition, section 5.9.3 and 5.9.4 will be provided by the fire department.<br/> 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.<br/> 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.<br/> One (1) handline nozzle, 200 gpm (750 L/min) minimum.<br/> Two (2) handline nozzles, 95 gpm (360 L/min) minimum.<br/> One (1) smoothbore of combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm.<br/> One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.<br/> One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).<br/> One (1) first aid kit.<br/> Four (4) combination spanner wrenches.<br/> Two (2) hydrant wrenches.<br/> One (1) double female 2.50" (65 mm) adapter with National Hose threads.<br/> One (1) double male 2.50" (65 mm) adapter with National Hose threads.<br/> One (1) rubber mallet, for use on suction hose connections.<br/> Two (2) salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m).<br/> One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.<br/> Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.<br/> Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.<br/> One (1) automatic external defibrillator (AED).<br/> Four (4) ladder belts meeting the requirements of NFPA 1983, <i>Standard on Fire Service Life Safety Rope and System Components</i> (if equipped with an aerial device).<br/> If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus.<br/> If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6.<br/> If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.<br/> If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.</p> |
| 0602407 | Soft Suction Hose, Provided by Fire Department, Pumper NFPA 2016 Classification   | <p><b>SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, section 5.8.2.1 requires a minimum of 20' of suction hose or 15' of supply hose will be carried.<br/> Hose is not on the apparatus as manufactured. The fire department will provide suction or supply hose.</p>  |
| 0027023 | No Strainer Required  |   |
| 0602538 | Extinguisher, Dry Chemical, Pumper NFPA 2016 Class, Provided by Fire Department   | <p><b>DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, section 5.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.<br/> The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.</p>  |
| 0602360 | Extinguisher, 2.5 Gal. Pressurized Water, Pumper NFPA 2016, Provided by Fire Dept | <p><b>WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, section 5.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.<br/> The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.</p>   |
| 0602679 | Axe, Flathead, Pumper NFPA 2016 Classification, Provided by Fire Department       | <p><b>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.<br/> The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.</p>  |



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| 0602667 | Axe, Pickhead, Pumper NFPA 2016 Classification, Provided by Fire Department | <p><b>PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.<br/> The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.</p>  |
| 0741569 | Paint Process / Environmental Requirements, Appleton                        | <p><b>PAINT</b><br/> The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:<br/> <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.<br/> <u>Chemical Cleaning and Pretreatment</u> - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion.<br/> <u>Surfacer Primer</u> - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.<br/> <u>Finish Sanding</u> - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.<br/> <u>Sealer Primer</u> - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.<br/> <u>Basecoat Paint</u> - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.<br/> <u>Clear Coat</u> - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.<br/> After the cab and body are painted, the color will be verified to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications will be used to determine the color match. A Delta E reading will be used to determine a good color match within each family color.<br/> All removable items such as brackets, compartment doors, door hinges, and trim will be removed and painted separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.<br/> The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards will be available upon request.</p> <p><b>PAINT - ENVIRONMENTAL IMPACT</b><br/> Contractor will meet or exceed all current state regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:<br/> Topcoats and primers will be chrome and lead free.<br/> Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.<br/> Particulate emission collection from sanding operations will have a 99.99% efficiency factor.<br/> Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient<br/> Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.<br/> Paint wastes are disposed of in an environmentally safe manner.<br/> Empty metal paint containers will be recycled to recover the metal.<br/> Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.<br/> Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his state EPA rules and regulations.</p> |
| 0709846 | Paint, Two-Tone Color, Velocity/Impel                                       | <p><b>CAB TWO-TONE PAINT</b><br/> The cab will be painted two-tone, with the upper section painted #10 white and the lower section painted #90 red. There will be a standard two-tone cab paint break provided.<br/> There will be no cab shield provided.</p>  |
| 0709845 | Paint, Single Color, Body   | <p><b>BODY PAINT</b><br/> The body will be painted to match the lower section of the cab.</p>   |

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| 0646897 | Paint Chassis Frame Assy, E-Coat, Standard    | <p><b>PAINT CHASSIS FRAME ASSEMBLY</b><br/> The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.<br/> Components treated with epoxy E-coat protection prior to paint:<br/> Two (2) C-channel frame rails<br/> Components that are included with the chassis frame assembly that will be painted not e-coated are:<br/> Cross members<br/> Axles<br/> Suspensions<br/> Steering gear<br/> Battery boxes<br/> Bumper extension weldment<br/> Frame extensions<br/> Body mounting angles<br/> Rear Body support substructure (front and rear)<br/> Pump house substructure<br/> Air tanks<br/> Steel fuel tank<br/> Castings<br/> Individual piece parts used in chassis and body assembly<br/> The E-coat process will meet the technical properties shown.</p> |
| 0693797 | No Paint Required, Aluminum Front Wheels      |   |
| 0693792 | No Paint Required, Aluminum Rear Wheels       |   |
| 0733739 | Paint, Axle Hubs                              | <p><b>AXLE HUB PAINT</b><br/> All axle hubs will be painted to match lower job color.</p>   |
| 0061536 | Paint, Hose Reel, Special Color               | <p><b>REEL PAINT</b><br/> The hose reel will be painted Lower Job color.</p>  |
| 0007230 | Compartment, Painted, Spatter Gray            | <p><b>COMPARTMENT INTERIOR PAINT</b><br/> The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.</p>   |
| 0544087 | Reflective Band, 6"                           | <p><b>REFLECTIVE BAND</b><br/> A 6.00" white reflective band will be provided across the front of the vehicle and along the sides of the body.</p>  |
| 0510041 | Reflective across Cab Face, Imp/Vel           | <p>The reflective band provided on the cab face will be below the headlights on the fiberglass.</p>   |
| 0536954 | Stripe, Chevron, Rear, Diamond Grade, Pumper  | <p><b>REAR CHEVRON STRIPING</b><br/> There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, will be covered.<br/> The colors will be red and fluorescent yellow green diamond grade.<br/> Each stripe will be 6.00" in width.<br/> This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.</p>   |
| 0677603 | SP Stop Sign, Reflective, Cab Doors Interior  | <p><b>STOP SIGN, REFLECTIVE, CAB DOORS</b><br/> A 12.00" x 12.00" reflective stop sign will be provided on the interior of each cab door. The stop sign will be located on the stainless steel door panel.<br/> This sign will meet the NFPA 1901 requirement.</p>  |
| 0065687 | Stripe, Reflective, Cab Doors Interior        | <p><b>CAB DOOR REFLECTIVE STRIPE</b><br/> A 6.00" x 16.00" white reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel.<br/> This stripe will meet the NFPA 1901 requirement.</p>   |
| 0594559 | Lettering Specifications, (Sign Gold Process) | <p><b>LETTERING</b><br/> The lettering will be 22 karat gold vinyl.</p>   |

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| 0685910 | Lettering, Sign Gold, 4.00", (21-40)                      | <b>LETTERING</b><br>Twenty-one (21) to forty (40) Sign Gold lettering, 4.00" high, with outline and shade will be provided.   |
| 0519961 | Lettering, Website Address, Reflective, Pair              | <b>WEB SITE ADDRESS LETTERING, REFLECTIVE</b><br>There will be a one (1) pair of web site addresses, in 1.00" to 2.00" reflective lettering, installed on each crew cab door per job #19247.  |
| 0685981 | Lettering, Reflective, 14.00", Each                       | <b>LETTERING</b><br>There will be reflective lettering, 14.00" high, with outline and shade provided. There will be one (1) letter provided.  |
| 0686013 | Lettering, Reflective, 6.00", Each                        | <b>LETTERING</b><br>There will be reflective lettering, 6.00" high, with no outline or shade provided. There will be six (6) letters provided.  |
| 0686018 | Lettering, Reflective, 5.00", Each                        | <b>LETTERING</b><br>There will be reflective lettering, 5.00" high, with outline and shade provided. There will be ten (10) letters provided.   |
| 0017268 | Decals, Customer furnished, Pierce installed, Per Pair    | <b>DECAL INSTALLATION</b><br>There will be one (1) pair of decals furnished by the fire department and applied by the apparatus manufacturer.   |
| 0755303 | Artwork File, Provided on Custom USB Drive                | <b>ARTWORK ON CUSTOM USB DRIVE</b><br>There will be a custom USB drive with department specific artwork files provided to the Fire Department.<br>Stock artwork, or artwork developed exclusively by Pierce Manufacturing, and proprietary fonts will not be included on the USB drive.   |
| 0666388 | Emblem, Freedom Flag with Twin Towers, Each               | <b>EMBLEM</b><br>There will be two (2) emblem(s), approximately 12.00" - 14.00" wide in size, installed per job 19247. The emblem will feature a "Flying American Flag" and an "Eagle Head", along with buildings in the background.  |
| 0769771 | Lettering, Numerals, Grille, Painted (1), All Chassis     | <b>LETTERING/NUMERAL ON CAB GRILLE</b><br>One (1) painted letter/numeral, as determined by the fire department, will be provided on the cab grille.   |
| 0529225 | Manuals, Two (2) CD, Fire Apparatus Parts, Custom Chassis | <b>FIRE APPARATUS PARTS CD MANUAL</b><br>There will be two (2) custom parts manuals for the complete fire apparatus provided in CD format with the completed unit.<br>The manuals will contain the following:<br>Job number<br>Part numbers with full descriptions<br>Table of contents<br>Parts section sorted in functional groups reflecting a major system, component, or assembly<br>Parts section sorted in alphabetical order<br>Instructions on how to locate parts<br>The manuals will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.<br><b>SERVICE PARTS INTERNET SITE</b><br>The service parts information included in these manuals are also available on the factory website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly. |

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| 0531636 | Manual, (2) CD, Chassis Service, Custom                         | <p><b>CHASSIS SERVICE CD MANUALS</b></p> <p>There will be two (2) CD format chassis service manuals containing parts and service information on major components provided with the completed unit.</p> <p>The manual will contain the following sections:</p> <ul style="list-style-type: none"> <li>Job number</li> <li>Table of contents</li> <li>Troubleshooting</li> <li>Front Axle/Suspension</li> <li>Brakes</li> <li>Engine</li> <li>Tires</li> <li>Wheels</li> <li>Cab</li> <li>Electrical, DC</li> <li>Air Systems</li> <li>Plumbing</li> <li>Appendix</li> </ul> <p>The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.</p> |
| 0531638 | Manual, Two (2) CD, Chassis Operation, Custom                   | <p><b>CHASSIS OPERATION CD MANUALS</b></p> <p>There will be two (2) CD format chassis operation manuals provided.</p>   |
| 0030008 | Warranty, Basic, 1 Year, Apparatus, WA0008                      | <p><b>ONE (1) YEAR MATERIAL AND WORKMANSHIP</b></p> <p>A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.</p>   |
| 0611136 | Warranty, Chassis, 3 Year, Velocity/Impel, WA0284               | <p><b>THREE (3) YEAR MATERIAL AND WORKMANSHIP</b></p> <p>The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.</p>  |
| 0696696 | Warranty, Engine, Detroit DD13, 5 Year, WA0180                  | <p><b>ENGINE WARRANTY</b></p> <p>A Detroit Diesel <b>five (5) year</b> limited engine warranty will be provided. A limited warranty certificate, WA0180, is included with this proposal.</p>  |
| 0684952 | Warranty, Steering Gear, TRW Ross TAS, 1 Year WA0202            | <p><b>STEERING GEAR WARRANTY</b></p> <p>A TRW <b>one (1) year</b> limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.</p>   |
| 0595767 | Warranty, Frame, 50 Year, Velocity/Impel, Dash CF, WA0038       | <p><b>FIFTY (50) YEAR STRUCTURAL INTEGRITY</b></p> <p>The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.</p>  |
| 0733309 | Warranty, Axle, 5 Year, Meritor, General Service, WA0384        | <p><b>FRONT AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b></p> <p>A Meritor™ Axle 5 year limited warranty will be provided.</p>   |
| 0733306 | Warranty, Single Axle, 5 Year, Meritor, General Service, WA0384 | <p><b>SINGLE REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b></p> <p>A Meritor™ Axle 5 year limited warranty will be provided.</p>   |
| 0652758 | Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232       | <p><b>ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b></p> <p>A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.</p>  |
| 0019914 | Warranty, Structure, 10 Year, Custom Cab, WA0012                | <p><b>TEN (10) YEAR STRUCTURAL INTEGRITY</b></p> <p>The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.</p>   |
| 0744240 | Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055                 | <p><b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b></p> <p>A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.</p>   |
| 0524627 | Warranty, Electronics, 5 Year, MUX, WA0014                      | <p><b>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</b></p> <p>The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.</p>   |
| 0695416 | Warranty, Pierce Camera System, WA0188                          | <p><b>CAMERA SYSTEM WARRANTY</b></p> <p>A Pierce fifty four (54) monthwarranty will be provided for the camera system.</p>  |

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| 0647720 | Warranty, Pierce LED Strip Lights, WA0203                                | <b>COMPARTMENT LIGHT WARRANTY</b><br>The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.   |
| 0046369 | Warranty, 5-year EVS Transmission, Standard Custom, WA0187               | <b>TRANSMISSION WARRANTY</b><br>The transmission will have a <b>five (5) year/unlimited mileage</b> warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.<br>Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.                     |
| 0685945 | Warranty, Transmission Cooler, WA0216                                    | <b>TRANSMISSION COOLER WARRANTY</b><br>The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.                            |
| 0688798 | Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195                   | <b>WATER TANK WARRANTY</b><br>A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.   |
| 0596025 | Warranty, Structure, 10 Year, Body, WA0009                               | <b>TEN (10) YEAR STRUCTURAL INTEGRITY</b><br>The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.  |
| 0693127 | Warranty, Gortite, Roll-up Door, 6 Year, WA0190                          | <b>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</b><br>A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A <b>six (6) year</b> limited warranty will be provided on painted and satin roll up doors. The limited warranty certificate, WA0190, is included with this proposal. |
| 0734463 | Warranty, Pump, Waterous, 7 Year Parts, WA0382                           | <b>PUMP WARRANTY</b><br>The Waterous pump will be provided with a Seven (7) year <b>material and workmanship limited warranty</b> .<br><b>A copy of the warranty certificate will be submitted with the bid package (no exception).</b>   |
| 0648675 | Warranty, 10 Year S/S Pumping, WA0035                                    | <b>TEN (10) YEAR PUMP PLUMBING WARRANTY</b><br>The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.  |
| 0657846 | Warranty, Foam System, Husky 12, WA0231                                  | <b>FOAM SYSTEM WARRANTY</b><br>The Husky 12 foam system limited warranty certificate, WA0231, is included with this proposal.   |
| 0725636 | Warranty, Harrison Generator, 2 Year                                     | <b>TWO (2) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY</b><br>A Harrison Hydra-Gen generator two (2) year <b>limited warranty will be provided</b> .   |
| 0595820 | Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057                         | <b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b><br>A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.   |
| 0595412 | Warranty, Graphics Lamination, 1 Year, Apparatus, WA0168                 | <b>ONE (1) YEAR MATERIAL AND WORKMANSHIP</b><br>The Pierce graphics fading and deterioration limited warranty limited warranty certificate, WA0168, is included with this proposal.   |
| 0683627 | Certification, Vehicle Stability, CD0156                                 | <b>VEHICLE STABILITY CERTIFICATION</b><br>The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.  |
| 0610837 | Certification, Engine Installation, Velocity, Detroit DD13, 2016, CD0148 | <b>ENGINE INSTALLATION CERTIFICATION</b><br>The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of bid.  |
| 0686786 | Certification, Power Steering, CD0098                                    | <b>POWER STEERING CERTIFICATION</b><br>The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.   |

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| 0667417 | Certification, Cab Integrity, Velocity FR, CD0009                      | <p><b>CAB INTEGRITY CERTIFICATION</b><br/> The fire apparatus manufacturer will provide a cab integrity certification with this proposal. The certification will state that the cab has been tested and certified by an independent third-party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state-licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:<br/> European Occupant Protection Standard ECE Regulation No.29.<br/> SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.<br/> SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.</p> <p><b>Roof Crush</b><br/> The cab will be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons.</p> <p><b>Additional Roof Crush</b><br/> The same cab will be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times.</p> <p><b>Side Impact</b><br/> The same cab will be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.</p> <p><b>Frontal Impact</b><br/> The same cab will withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420.</p> <p><b>Additional Frontal Impact</b><br/> The same cab will withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420).<br/> The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.</p> |
| 0548950 | Certification, Cab Door Durability, Velocity/Impel, CD0001             | <p><b>CAB DOOR DURABILITY CERTIFICATION</b><br/> Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.</p>  |
| 0548967 | Certification, Windshield Wiper Durability, Impel/Velocit, CD0005      | <p><b>WINDSHIELD WIPER DURABILITY CERTIFICATION</b><br/> Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i>. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.</p>   |
| 0667411 | Certification, Electric Window Durability, Velocity/Impel FR, CD0004   | <p><b>ELECTRIC WINDOW DURABILITY CERTIFICATION</b><br/> Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.</p>  |
| 0549273 | Certification, Seat Belt Anchors and Mounting, Imp/Vel/Vel SLT, CD0018 | <p><b>SEAT BELT ANCHOR STRENGTH</b><br/> Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.</p> <p><b>SEAT MOUNTING STRENGTH</b><br/> Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.</p>  |

|         |  |   |
|---------|--|---|
| 0735950 | Certification, Cab HVAC System Perf, Vel/Imp FR, CD0166/CD0168/CD0176/CD0177 | <p><b>PERFORMANCE CERTIFICATIONS</b></p> <p><b>Cab Air Conditioning</b><br/>Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.</p> <p><b>Cab Defroster</b><br/>Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. <i>The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</i></p> <p><b>Cab Auxiliary Heater</b><br/><i>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.</i></p> |
| 0545073 | Amp Draw Report, NFPA Current Edition  | <p><b>AMP DRAW REPORT</b></p> <p>The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.</p> <p>The manufacturer of the apparatus will provide the following:<br/>Documentation of the electrical system performance tests.<br/>A written load analysis, which will include the following:<br/>The nameplate rating of the alternator.<br/>The alternator rating under the conditions specified per:<br/>Applicable NFPA 1901 or 1906 (Current Edition).<br/>The minimum continuous load of each component that is specified per:<br/>Applicable NFPA 1901 or 1906 (Current Edition).<br/>Additional loads that, when added to the minimum continuous load, determine the total connected load.<br/>Each individual intermittent load.<br/>All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).</p>   |
| 0002758 | Amp Draw, NFPA/ULC Radio Allowance   |   |
| 0799248 | Appleton/Florida BTO   |   |
| 0000018 | PUMPER, 2ND GEN  |   |
| 0000012 | PIERCE CHASSIS   |   |
| 0562778 | DD13 ENGINE  |   |
| 0046396 | EVS 4000 Series TRANSMISSION   |   |
| 0020011 | WATEROUS PUMP  |   |
| 0020009 | POLY TANK  |   |
| 0028048 | FOAM SYSTEM  |   |
| 0020006 | SIDE CONTROL   |   |
| 0020007 | AKRON VALVES   |   |
| 0020015 | ABS SYSTEM   |   |
| 0658751 | PUMPER BASE  |   |







# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship

### Basic Apparatus

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| Coverage:  | Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship              |
| Warranty Begins:   | The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first. |
| Warranty Period Ends After:                                    | Twelve (12) months.  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | No specific exclusions apply   |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Velocity and Impel Custom Chassis

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship   |
| Warranty Begins:   | The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.  |
| Warranty Period Ends After:                                    | Three (3) Years, or 30,000 Miles, or 5000 Engine Hours  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This limited warranty applies, where applicable, to Goldstar lamination, defroster heater coil and motor blower assembly (excluding the FET PWM module), heater, air conditioning condenser coil and fan/motor assembly, air conditioning evaporator coil and motor blower assembly (excluding the drain pan pump and thermostat), under seat heaters coil and motor blower assembly (excluding the FET PWM module), HVAC electronic switches, HVAC hoses and hard lines, heater water valve, Pierce PS6 seat frames and hardware, Pierce One-Eleven mirrors, Pierce hands-free scba holder, cracking or color loss of roto-molded components, Meritor rear axle, Wabco ABS system, cab door handles, Standen spring suspension components, and the gauge instrument cluster. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

# Limited Warranty on New Detroit Diesel

## DD13 Engines

### Used In Fire Truck or Crash Vehicle Applications



#### Terms of Coverage:

##### Uses

This warranty applies to the first retail purchaser and subsequent owners during the WARRANTY PERIOD of new DD13 Engines (referred to as Engine) manufactured by Detroit Diesel and/or supplied by Detroit Diesel or Detroit Diesel of Canada Limited (which are collectively referred to as Detroit Diesel) for use in fire truck or crash vehicle applications.

##### Defects

This warranty covers Engine REPAIRS to correct any malfunction occurring during the WARRANTY PERIOD resulting from defects in material or workmanship.

##### Repairs

To obtain warranty repairs, you must request the needed repairs within the WARRANTY PERIOD from an authorized Detroit Diesel service outlet. Only new genuine parts, remanufactured parts or components supplied or approved by Detroit Diesel will be used. Detroit Diesel may, at its discretion, replace rather than repair components. A reasonable time must be allowed to perform the warranty repair after taking the engine to the authorized service outlet. Repairs will be performed during normal business hours.

##### Warranty Period

The WARRANTY PERIOD begins on the date the Engine is delivered to the first retail purchaser or put in use prior to sale at retail, whichever date occurs first, and ends at the time or mileage/kilometer limits shown below:

| WARRANTY PERIOD  |  |                              |                                      |           |
|--|--|------------------------------|--------------------------------------|-----------|
| Item   | Warranty Limitations<br>(Whichever Occurs First) |                              | Repair Charge To Be<br>Paid By Owner |           |
|  | MONTHS   | MILES/KM                     | PARTS                                | LABOR     |
| Engine   | 0-60   | 0-100,000 mi<br>0-160,000 km | No Charge                            | No Charge |
| Accessories*   | 0-24   | 0-100,000 mi<br>0-160,000 km | No Charge                            | No Charge |
| * Fire Commander warranty is two year/unlimited mileage. |  |                              |                                      |           |

##### Service Supplies

The cost of service supplies such as coolant, oil and filters which are not reusable due to needed repairs is covered by this warranty.

##### Like Replacement Engine

Engine(s) supplied by Detroit Diesel as a replacement for an Engine still under warranty will assume the identity of the Engine being replaced and be entitled to the remaining warranty coverage.

##### Engine Removal and Reinstallation

Reasonable labor costs for engine removal and reinstallation, when necessary to make a warranty repair, are covered by this warranty.

##### Towing

During the base warranty period reasonable towing costs to the nearest authorized service outlet are covered by the warranty when due to warrantable failure and the engine is either inoperable, cannot be safely operated or continued operation would cause further damage to the Product.

#### This Warranty Does Not Cover:

##### Repairs Due To Accidents, Misuse, Alteration, Storage Damage, Negligence Or Certain Modifications

Repairs due to an accident, misuse, alteration, misapplication, storage damage, negligence or modification exceeding Detroit Diesel specifications, are not covered by this warranty.

##### Maintenance

Detroit Diesel is not responsible for the cost of maintenance or repairs due to lack of performance of required maintenance services or the failure to use fuel, oil, lubricants and coolant meeting Detroit Diesel-recommended specifications. Performance of the required maintenance and use of proper fuel, oil, lubricants and coolant are the responsibility of the owner. See the Engine Operator's Guide for full details.

##### Incidental or Consequential Damages

Detroit Diesel is not responsible for incidental or consequential costs or expenses which the owner may incur as a result of a malfunction or failure covered by this warranty, such as communication expenses, meals, lodging, overtime, loss of use of the Engine or vehicle ("downtime"), loss of time, inconvenience, cargo loss or damage, and other similar costs and expenses.

##### Other Limitations

The performance of REPAIRS is the exclusive Owner's remedy under this warranty. Detroit Diesel does not authorize any person to assume or create for it any other obligation or liability in connection with the Engine or the Accessories.

THIS LIMITED WARRANTY AND THE EMISSIONS CONTROL WARRANTY ARE THE ONLY WARRANTIES APPLICABLE TO THE ENGINE AND ACCESSORIES AS USED IN FIRE TRUCK OR CRASH VEHICLE APPLICATIONS. DETROIT DIESEL MAKES NO OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. DETROIT DIESEL SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES AS DESCRIBED ABOVE.

Some states do not allow the limitation of how long this warranty may last or the limitation or exclusion of incidental or consequential damages, so the above may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

**DETROIT DIESEL**   
**DEMAND PERFORMANCE™**  
 13400 Outer Drive, West / Detroit, Michigan 48239-4001  
 Telephone: 313-592-5000  
 www.detroitdiesel.com

**TRW COMMERCIAL STEERING SYSTEMS**  
800 HEATH STREET  
LAFAYETTE, INDIANA 47904



## **PRODUCT WARRANTY**

- I. WARRANTY:** The Commercial Steering Systems group of TRW, Inc., hereinafter referred to as "CSS", warrants that each new product supplied by CSS to its customer, when properly installed, used and maintained, shall be free from defect in material and workmanship for the period specified below:
- (A) CSS Product installed in **New On-highway Motor Vehicle:**
- Within twelve (12) months after date of delivery of such vehicle to the original retail purchaser, or before such vehicle has been driven one hundred thousand (100,000) miles, whichever event shall first occur.
- (B) CSS Product installed in **New Agricultural, Turf, Industrial, or Construction Vehicles and Related Equipment**
- Within twelve (12) months after date of delivery of such vehicle/equipment to the original retail purchaser or before such vehicle/equipment has been operated for two thousand (2000) hours or fifty thousand (50,000) miles, whichever occurs first.
- (C) CSS Product installed in **New End Product, Not Specifically Mentioned in Classifications (A) or (B) Above and All Other Off-Highway/Severe Applications:**
- Within six (6) months after date of delivery of the original equipment manufacturer's end product to the original retail purchaser.
- II. REMEDY:** Customer's sole remedy under the foregoing warranty is limited to correction by means of repair, replacement or issuance of credit, at the option of CSS, of any product which is:
- (A) Returned to CSS within the specified warranty time period, with prior notice to, and the written consent of, CSS, with transportation and handling charges prepaid, together with a statement describing the alleged defect, the part number, model number and application, and mileage or hours of use of such product; and
- (B) Upon examination, determined by CSS not to conform to the warranty.
- III.** Any product which is repaired or replaced under this warranty will be returned to customer prepaid. Disposition of any product determined not to be covered by this warranty will be at the customer's expense.
- IV.** CSS will not be liable for any repairs, replacements, or adjustments to any product or any cost of labor performed by or at the request of customer without the express prior written consent of CSS.
- V. EXCEPTIONS:** The provision of this warranty shall not apply to any CSS product which is used for a purpose for which it is not designed, or which shall have been repaired or altered in any way, or which has been subject to misuse, negligence or accident, neglect of normal maintenance services, so as, in the judgement of CSS to adversely affect its performance and reliability. In no case will the CSS warranty exceed the standard published warranty of its customer in terms of time and/or distance. In all events, the CSS warranty will expire thirty (30) months after the date of manufacture as stamped on the Product. In the case of hydraulic equipment, operation with unapproved fluid or temperatures voids this warranty.
- VI. EXCLUSION OF ALL OTHER REMEDIES AND LIMITATION OF LIABILITY:** Customer's sole and exclusive remedy under the foregoing warranty shall be for the repair, replacement or issuance of credit with respect to a defective product, as set forth and described above. Other provisions hereof notwithstanding, CSS shall not be liable to Customer, or any successor in interest, beneficiary or assignee of Customer, based upon any claim against CSS, whether in contract, warranty, negligence, strict liability, indemnity or otherwise, for any special, consequential, incidental or other damages relating in any way to the design, manufacture, sale, installation or other use of any product purchased from CSS.
- VII. EXCLUSION OF ALL OTHER WARRANTIES: THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY BY CSS AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES AND REPRESENTATIONS, WHETHER ORAL, WRITTEN, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**



# Fire and Rescue Apparatus

## Lifetime Fifty (50) Year Structural Integrity Chassis Frame & Crossmembers

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Custom chassis frame rail and cross members manufactured by Pierce shall be free from defects in material and workmanship |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).                               |
| Warranty Period Ends After:                                    | Fifty (50) Years<br>(Expected Life of Apparatus)  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty does not apply to damage caused by corrosion.   |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





# Fire and Rescue Apparatus



## SUPPLIER

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the purchaser who first puts the product in service ("Buyer"):

|  |  |
|--|--|
| <b>Coverage:</b>   | <b>The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description</b> |
| <b>Warranty Begins:</b>  | <b>The date of the original purchase invoice (issued when the product ships from the factory).</b>                     |
| <b>Warranty Period Ends After:</b>   | <b>Five (5) Years</b>  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <b>The exclusions listed in the attached Meritor warranty description shall apply.</b>                                 |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2020 VEHICLES



**MERITOR**





# WARRANTY INFORMATION CONTENTS

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## How to Read Warranty Coverage

|                 |   |                                   |
|-----------------|---|-----------------------------------|
| Number of Years | Mileage (in thousands)<br>Unl=Unlimited | P=Parts Only<br>P&L=Parts & Labor |
|-----------------|---|-----------------------------------|

### Notice:

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

### Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).





# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- Bulk Hauler
- Chip Hauler (Truck)\*
- Doubles
- Flatbed
- General Freight
- Grain Hauler
- Livestock Hauler
- Moving Van
- Pipe Hauler
- Refrigerated Freight
- Tanker
- Triples

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/750/P&L

|        |               |                |                |                |                |
|--------|---------------|----------------|----------------|----------------|----------------|
| FD-965 | FF-967        | MFS-12-122B-N  | MFS-12-132C-N  | MFS-13-122B-N  | MFS-13B-122C-N |
| FF-941 | FG-941        | MFS-12-122C-N  | MFS-12E-132B-N | MFS-13-122C-N  | MFS-13B-132B-N |
| FF-942 | FG-943        | MFS-12E-122A-N | MFS-12E-132C-N | MFS-13-132B-N  | MFS-13B-132C-N |
| FF-943 | MFS-10-122A   | MFS-12E-122B-N | MFS-12-143A-N  | MFS-13-132C-N  | MFS-14-122A-N  |
| FF-944 | MFS-10-143A-N | MFS-12E-122C-N | MFS-12E-143A-N | MFS-13-143A-N  | MFS-14-124A-N  |
| FF-961 | MFS-10-144A-N | MFS-12-124A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-14-143A-N  |
| FF-966 | MFS-12-122A-N | MFS-12-132B-N  | MFS-13-122A-N  | MFS-13B-122B-N | MFS-14-144A-N  |

## Rear Drive Single Axles – 5/750/P&L

|                 |           |           |
|-----------------|-----------|-----------|
| RS-19-144/145/A | RS-21-145 | RS-23-160 |
| MS-19-14X       | RS-21-160 | RS-23-161 |
| MS-21-144       | MS-23-17X | RS-23-186 |

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

|                              |             |                     |
|------------------------------|-------------|---------------------|
| RT-34-144/P/A                | MA-40-165   | MT-40-14XHE         |
| RT-40-145/A                  | MA-40-175   | MT-40-144/P         |
| RT-40-160/P <sup>1,2</sup>   | MT-34-14X/P | MT-40-943           |
| RT-46-160/P <sup>1,2</sup>   | MT-40-14T/P | MT-40-943-SP        |
| RT-46-164EH/P <sup>1,2</sup> | MT-40-14X/P | RZ-166 <sup>2</sup> |
| RT-50-160/P <sup>1,2</sup>   | MT-40-14X/P | RZ-188              |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 5/500/P, 1/Unl/P&L |
| MXL  | 3/350/P, 1/Unl/P&L |
| 155N | 1/Unl/P            |
| 92N  | 1/Unl/P            |

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# LINEHAUL WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                                | 5/500/P, 1/100/L            |
| Q+ Drum Brake™   | 5/500/P, 1/Unl/P&L          |
| ASA  | 5/500/P, 1/Unl/P&L          |
| Hubs/Cast Drums and Other Wheel-end Components             | 1/Unl/P                     |
| Hydraulic Disc Brakes                                      | 1/Unl/P                     |
| All Other Brakes   | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>                      | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™  | 5/500/P, 1/Unl/L            |
| EX+ Air Disc Brake Extended Standard Warranty <sup>3</sup> | 5/500/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies only to MA761 friction material code CD brake assembly i.e. EX225LXXXCDXXX

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets              | 5/500/P, 1/100/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System <sup>2</sup>   | 1/100/P&L        |
| PreSet by Meritor <sup>3</sup> | 5/500/P&L        |
| AxlePak <sup>5</sup>           | 5P/L             |
| AxlePak <sup>7</sup>           | 7P/L             |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

|                                    |           |
|------------------------------------|-----------|
| TQ, TQD, TR, TRD Beam and Brackets | 5/750/P&L |
|------------------------------------|-----------|

<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/100/P&L        |
| PinLoc Actuator                                   | 3/300/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs & Rebound Straps                      | 2/200/P, 1/100/L |
| Bushings  | 5/500/P, 3/300/L |

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> “Curbing damage” is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.



# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

- Auto Hauler
- Beverage Truck
- Chip Hauler
- Cross Country Coach
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Newspaper Delivery
- Pick-Up and Delivery
- Pipe Hauler
- Platform Auto Hauler
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Trailer
- Tour Bus
- Wrecker

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 2/Uni/P&L

|                     |              |                |                |                |                |
|---------------------|--------------|----------------|----------------|----------------|----------------|
| FD-965              | FL-943       | MFS-8-163B-N   | MFS-12E-132B-N | MFS-13-132C-N  | MFS-16-143A-N  |
| FF-941              | MFS-6-151A-N | MFS-10-122A    | MFS-12-132C-N  | MFS-13B-132B-N | MFS-18-133A-N  |
| FF-942              | MFS-6-153B-N | MFS-10-143A-N  | MFS-12E-132C-N | MFS-13B-132C-N | MFS-18-135A-N  |
| FF-943              | MFS-6-162B-N | MFS-10-144A-N  | MFS-12-143A-N  | MFS-13-143A-N  | MFS-18-193A-N  |
| FF-944              | MFS-6-153C-N | MFS-12-122A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-20-133A-N  |
| FF-946              | MFS-6-162C-N | MFS-12E-122A-N | MFS-12E-143A-N | MFS-14-122A-N  | MFS-20-135A-N  |
| FF-961              | MFS-7-113C-N | MFS-12-122B-N  | MFS-13-122A-N  | MFS-14-124A-N  | MFS-20-192A-N  |
| FF-966              | MFS-7-153C-N | MFS-12E-122B-N | MFS-13-122B-N  | MFS-14-143A-N  | MFS-20-193A-N  |
| FG-967              | MFS-7-163C-N | MFS-12-122C-N  | MFS-13B-122B-N | MFS-14-144A-N  | MFS-22-135A-N  |
| FG-941              | MFS-8-113B-N | MFS-12E-122C-N | MFS-13-122C-N  | MFS-16-122A-N  | MFS-22H-135A-N |
| FH-941              | MFS-8-143A-N | MFS-12-124A-N  | MFS-13B-122C-N | MFS-16-133A-N  | MFS-22-193A-N  |
| FH-946 <sup>1</sup> | MFS-8-153B-N | MFS-12-132B-N  | MFS-13-132B-N  | MFS-16-135A-N  | MFS-22H-193A-N |
| FL-941              |              |                |                |                |                |

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Front Drive/Non-Drive Steer Axles – 1/Uni/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

## Rear Drive Tandem/Tridem - 3/Uni/P&L

|               |             |
|---------------|-------------|
| RT-40-160/P   | RT-50-160/P |
| RT-46-160/P   | RZ-166      |
| RT-46-164EH/P |             |

## Rear Drive Axles – 1/Uni/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 4/400/P, 1/Uni/P&L |
| MXL  | 3/350/P, 1/Uni/P&L |
| 155N | 1/Uni/P            |
| 92N  | 1/Uni/P            |

## Rear Drive Single Axles – 2/Uni/P&L

|                 |             |                        |              |              |
|-----------------|-------------|------------------------|--------------|--------------|
| MS-17-13X       | MS-21-14X   | RC-23-160              | RS-24-160    | MS-30-616-SP |
| MS-17-14X       | MS-21-144   | RC-23-161              | RC-25-160    | RS-35-380    |
| MS-19-13X       | MS-23-17X   | RC-23-162 <sup>1</sup> | RS-26-185    | 71162        |
| MS-19-14X       | RS-21-145/A | RC-23-165 <sup>1</sup> | MS-26-616    | 71163        |
| RS-17-144/145/A | RS-21-160   | RS-23-160              | MS-26-616-SP | 79163        |
| RS-19-144/145/A | RC-22-145   | RS-23-161              | RS-30-185    |              |
| MS-21-13X       | RC-22-145/A | RS-23-186              | MS-30-616    |              |

<sup>1</sup> 3/Uni/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 2/Uni/P&L

|               |             |                        |                        |
|---------------|-------------|------------------------|------------------------|
| MT-34-14X/P   | MT-40-14XHE | RT-44-145/P            | MT-58-616              |
| RT-34-144/P/A | MT-40-144/P | RT-46-169              | RT-58-185 <sup>1</sup> |
| MT-40-14T/P   | RT-40-145/A | MT-52-616              | MT-70-380              |
| MT-40-14X/P   | MT-44-14X/P | RT-52-185 <sup>1</sup> | RZ-188                 |

## Transmission – 1/Uni/P&L

|     |        |
|-----|--------|
| 516 | FAT 30 |
|-----|--------|

## PTO – 1/Uni/P&L

|         |         |          |
|---------|---------|----------|
| MPT-318 | MPT-526 | MPT-1702 |
| MPT-500 | MPT-531 | MPT-175  |
| MPT-510 | MPT-543 | MPT-185  |
| MPT-518 | MPT-170 | MPT-190  |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                    | 3/Unl/P, 1/Unl/L            |
| Cam P <sup>3</sup>                             | 2/200/P                     |
| Cam  | 3/Unl/P                     |
| Q+ Drum Brake™                                 | 3/Unl/P&L                   |
| Q+ Drum Brake™ <sup>3</sup>                    | 2/200/P&L                   |
| ASA  | 3/Unl/P                     |
| ASA <sup>3</sup>                               | 2/200/P                     |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P                     |
| Hydraulic Disc Brakes                          | 1/Unl/P                     |
| All Other Brakes                               | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>          | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™                            | 2/Unl/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |
| AxlePak <sup>4</sup>           | 5/P&L            |
| AxlePak <sup>5</sup>           | 7/P&L            |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

|                                |                  |
|--------------------------------|------------------|
| Beam & Brackets                | 6/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System                | 1/Unl/P&L        |
| AxlePak7                       | 7/P&L            |
| Beam and Brackets              | 7/P, 1/L         |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/Unl/P&L        |
| PinLoc Air Actuator                               | 3/Unl/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs and Rebound Straps                    | 2/Unl/P, 1/Unl/L |
| Bushings <sup>3</sup>                             | 5/Unl/P, 3/Unl/L |

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

|   |                  |
|---|------------------|
| TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup> | 3/Unl/P, 1/Unl/L |
| MC14002, MC16003, FH946                         | 2/Unl/P&L        |

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/Unl/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Heavy Service/Specialty Vehicle

- Airport Rescue Fire Fighting (ARFF)
- Airport Shuttle\*
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Mixer
- Demolition
- Drill Rig
- Dump
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Rear Loader (Refuse)
- Recycling Truck
- Residential Pick-Up (Refuse)
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus\*
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Utility Truck
- Winch Truck

\*Commercial chassis only

### Heavy Service/Specialty Vehicle Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

### Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

|        |              |                |                |               |                |               |
|--------|--------------|----------------|----------------|---------------|----------------|---------------|
| FD-965 | FL-941       | MFS-10-143A-N  | MFS-12-143A-N  | MFS-13-144A-N | MFS-18-193A-N  | MX-12-120     |
| FF-941 | FL-943       | MFS-10-144A-N  | MFS-12-144A-N  | MFS-13-155    | MFS-20-133A-N  | MX-12-120 EVO |
| FF-942 | MFS-6-151A-N | MFS-12-122     | MFS-12-155     | MFS-14-122    | MFS-20-135A-N  | MX-14-120     |
| FF-943 | MFS-6-153B   | MFS-12E-122    | MFS-13-122     | MFS-14-124A-N | MFS-20-192A-N  | MX-16-120     |
| FF-944 | MFS-6-162B   | MFS-12-122B-N  | MFS-13-122B-N  | MFS-14-143A-N | MFS-20-193A-N  | MX-18-120     |
| FF-946 | MFS-6-162C   | MFS-12E-122B-N | MFS-13B-122B-N | MFS-14-144A-N | MFS-22-135A-N  | MX-17-140     |
| FF-961 | MFS-7-113C-N | MFS-12-122C-N  | MFS-13-122C-N  | MFS-16-122A-N | MFS-22H-135A-N | MX-19-140     |
| FF-966 | MFS-7-153C-N | MFS-12E-122C-N | MFS-13B-122C-N | MFS-16-133A-N | MFS-22-193A-N  | MX-21-140     |
| FF-967 | MFS-7-163C-N | MFS-12-124A-N  | MFS-13-132B-N  | MFS-16-135A-N | MFS-22H-193A-N | MX-21-160     |
| FG-941 | MFS-8-113B-N | MFS-12-132B-N  | MFS-13B-132B-N | MFS-16-143A-N | RF-16-145      | MX-23-160     |
| FG-943 | MFS-8-153B-N | MFS-12E-132B-N | MFS-13-132C-N  | MFS-18-133A-N | RF-21-160      | MX-810        |
| FH-941 | MFS-8-163B-N | MFS-12-132C-N  | MFS-13B-132C-N | MFS-18-135A-N | MX-10-120      |               |
| FH-946 | MFS-10-122A  | MFS-12E-132C-N | MFS-13-143A-N  | MFS-18-192A-N | MX-10-120 EVO  |               |

### Front Drive/Non-Drive Steer Axles – 1/Unl/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

### Rear Drive Axles – 1/Unl/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

### Drivelines

|     |                    |
|-----|--------------------|
| RPL | 3/Unl/P, 1/Unl/P&L |
| 92N | 1/Unl/P&L          |
| MXL | 1/Unl/P&L          |

### Rear Drive Single Axles – 2/Unl/P&L

|                 |               |               |              |
|-----------------|---------------|---------------|--------------|
| MS-17-14X       | RS-21-160     | RS-24-160     | MS-35-380    |
| RS-17-144/145/A | RC-22-145     | RS-25-160     | RS-38-380    |
| MS-19-14X       | RC-23-160     | MS-26-616     | RC-25-160    |
| RS-19-144       | RH-23-160     | MS-26-616-SP  | RC-26-633    |
| MS-21-114       | RS-23-160     | RS-26-185/380 | MT-58-616    |
| MS-21-14X       | RC-23-161     | MS-30-616     | MT-58-616-SP |
| RS-21-145       | RS-23-161     | MS-30-616-SP  |              |
| RS-21-145/A     | RS-23-186/380 | RS-30-185/380 |              |

### Transmission – 1/Unl/P&L

516  
FAT 30

### PTO – 1/Unl/P&L

|         |         |          |
|---------|---------|----------|
| MPT-318 | MPT-526 | MPT-1702 |
| MPT-500 | MPT-531 | MPT-175  |
| MPT-510 | MPT-543 | MPT-185  |
| MPT-518 | MPT-170 | MPT-190  |



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

|               |              |                              |           |
|---------------|--------------|------------------------------|-----------|
| MT-34-14X/P   | RT-44-145/P  | RT-52-185/380 <sup>1,2</sup> | MT-70-380 |
| RT-34-144/P/A | RT-46-169    | MT-58-616                    | RZ-188    |
| MT-40-14X/P   | RT-58-160    | MT-58-616-SP                 |           |
| RT-40-145/A   | MT-52-616    | RT-58-185/380 <sup>1,2</sup> |           |
| MT-44-14X/P   | MT-52-616-SP | RT-70-380                    |           |

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam P  | 3/Unl/P   |
| Cam P <sup>3</sup>                             | 2/100/P   |
| Cam Cast Plus™                                 | 2/100/P&L |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| Q+ Drum Brake™ <sup>2</sup>                    | 2/100/P&L |
| ASA  | 3/Unl/P   |
| ASA <sup>2</sup>                               | 2/100/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake                             | 2/100/P&L |

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Rear Drive Tandem/Tridem - 3/Unl/P&L

|                                |
|--------------------------------|
| RT-40-160/P/A <sup>3</sup>     |
| RT-46-160/P/A <sup>1,3</sup>   |
| RT-46-164EH/P/A <sup>2,3</sup> |
| RT-50-160/P/A <sup>3</sup>     |
| RZ-166                         |

<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|  |                  |
|--|------------------|
| MTA (Trailing Arm)                       |                  |
| Major Structural Components <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Height Control Valve                     | 1/Unl/P&L        |
| Shock Absorbers                          | 2/Unl/P&L        |
| Air Springs                              | 2/Unl/P, 1/Unl/L |
| Bushings <sup>1</sup>                    | 5/Unl/P, 3/Unl/L |

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Gearboxes – 1/Unl/P&L

|          |         |         |         |         |         |
|----------|---------|---------|---------|---------|---------|
| MGX-240  | MGX-376 | MGX-448 | MGX-506 | MGX-528 | MGX-546 |
| MGX-279  | MGX-377 | MGX-456 | MGX-514 | MGX-533 | MGX-550 |
| MGX-279D | MGX-378 | MGX-478 | MGX-519 | MGX-534 |         |
| MGX-280  | MGX-380 | MGX-480 | MGX-520 | MGX-536 |         |
| MGX-285  | MGX-384 | MGX-487 | MGX-522 | MGX-537 |         |
| MGX-292  | MGX-402 | MGX-488 | MGX-524 | MGX-541 |         |
| MGX-314  | MGX-413 | MGX-505 | MGX-527 | MGX-545 |         |

## Transfer Cases – 1/Unl/P

|                                  |                          |                          |
|----------------------------------|--------------------------|--------------------------|
| MTC-4213                         | MTC-3118-CV (358)        | MTC-3209-GV (RTC-60/420) |
| MTC-4210                         | MTC-3120-FV (TC-143)     | MTC-3209-GV (RTC-60/380) |
| MTC-4208                         | MTC-3124 (T-2119)        | MTC-3209-GV (MTC-60/420) |
| MTC-4206-FV (TC-38)              | MTC-3205-GV (MTC-25/247) | MTC-3209-GV (MTC-60/380) |
| MTC-3106-FV (TC-137)             | MTC-3205-GV (MTC-25/350) | MTC-3212-CV (315 & 548B) |
| MTC-3111 (T-2111)                | MTC-3205-GV (RTC-25/350) | MTC-3312-FV (TC-270)     |
| MTC-3112-CV (529 & 548C)         | MTC-3206-FV (TC-237)     | MTC-3220-FC (TC-142)     |
| MTC-3116 (T-2111)                | MTC-3206-CS (544)        | MTC-2212-CV (306)        |
| MTC-3118-FV (TC-180 & TC-180-23) | MTC-3208-GV (RTC-50)     |                          |



# FIRE AND EMERGENCY WARRANTY INFORMATION

## Fire and Emergency Vehicles

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Command Vehicle
- Crash Fire Rescue (CFR)
- Pumper
- Rapid Intervention Vehicle (RIV)
- Tanker

## Fire and Emergency Typically Is

- Lower mileage operations (less than 20,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/Unl/P&L

|               |               |                |
|---------------|---------------|----------------|
| FL-941        | MFS-18-193A-N | MFS-22-135A-N  |
| FL-943        | MFS-20-133A-N | MFS-22H-135A-N |
| MFS-18-133A-N | MFS-20-135A-N | MFS-22-193A-N  |
| MFS-18-135A-N | MFS-20-193A-N | MFS-22H-193A-N |

## Front Drive Steer Axles – 2/Unl/P&L

|          |          |          |
|----------|----------|----------|
| MX-19140 | MX-21160 | MX-23810 |
| MX-21140 | MX-23160 |          |

## Rear Drive Single Axles – 5/Unl/P&L

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| RC-23-160 | RS-23-186 | RS-26-185 | RS-25-160 |
| RS-23-160 | RS-24-160 | RS-30-185 |           |
| RS-23-161 | RC-25-160 | RS-35-380 |           |

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 5/Unl/P&L

|             |               |                        |
|-------------|---------------|------------------------|
| MT-40-14X/P | RT-44-145/P   | MT-52-616              |
| MT-40-144/P | RT-46-160/P   | RT-52-185 <sup>1</sup> |
| RT-40-145/A | RT-46-164EH/P | MT-58-616              |
| RT-40-160/P | RT-46-169     | RT-58-185 <sup>1</sup> |
| MT-44-14X/P | RT-50-160/P   | MT-70-380              |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam  | 3/Unl/P   |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| ASA  | 3/Unl/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake™                            | 2/Unl/P&L |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

## Drivelines

|      |                  |
|------|------------------|
| RPL  | 4/400/P, 1/Unl/L |
| MXL  | 3/350/P, 1/Unl/L |
| 155N | 1/Unl/P          |
| 92N  | 1/Unl/P          |

## Transfer Cases – 1/Unl/P

|          |                   |
|----------|-------------------|
| MTC-4208 | MTC-3111 (T-2111) |
| MTC-4210 | MTC-3116 (T-2111) |
| MTC-4213 | MTC-3124 (T-2119) |





# TRANSIT BUS WARRANTY INFORMATION

## Transit Bus Vehicles

- Airport Shuttle
- City Bus
- Commuter Coach
- Shuttle Bus
- Transit Bus
- Trolley

## Transit Bus Typically Is

- Moderate mileage operation (less than 50,000 miles per year)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 5/300/P&L

FH-946                      MFS-12-155  
 FH-941<sup>1</sup>                     MFS-13-155

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Drivelines

RPL                              3/Unl/P, 1/Unl/L  
 92N                              1/Unl/P&L  
 MXL                              1/Unl/P&L

## Rear Drive Single Axles – 5/300/P&L

RS-23-160                    79163                      RS-21-160  
 RC-23-161                    RC-23-162<sup>1</sup>  
 71163                          RC-23-165<sup>1</sup>

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Tag Axles – 2/Unl/P&L

MC-14002  
 MC-16003  
 FH-946

## Brake Components

Cam Cast Plus™                      2/100/P&L  
 Q+ Drum Brake™<sup>1</sup>                    2/100/P&L  
 ASA<sup>1</sup>                                      2/100/P  
 Hubs/Cast Drums and  
 Other Wheel-end  
 Components                              1/Unl/P  
 All Other Brakes                        1/Unl/P  
 EX+ Air Disc Brake                    2/100/P&L

<sup>1</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

## Center Non-drive Axles – 5/300/P&L

MC-26000  
 71063  
 79063







# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Heavy Vehicle Systems, LLC warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number 1 and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not branded by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Product models, brands, names and trademarks depicted herein are the property of their respective owners and, except where otherwise indicated, are not in any way associated with Meritor Heavy Vehicle Systems, LLC, or any parent or affiliate, thereof.



Meritor Heavy Vehicle Systems, LLC  
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or visit [meritor.com](http://meritor.com)

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# Fire and Rescue Apparatus



## SUPPLIER

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the purchaser who first puts the product in service ("Buyer"):

|  |  |
|--|--|
| <b>Coverage:</b>   | <b>The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description</b> |
| <b>Warranty Begins:</b>  | <b>The date of the original purchase invoice (issued when the product ships from the factory).</b>                     |
| <b>Warranty Period Ends After:</b>   | <b>Five (5) Years</b>  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <b>The exclusions listed in the attached Meritor warranty description shall apply.</b>                                 |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2020 VEHICLES



**MERITOR**





# WARRANTY INFORMATION CONTENTS

Effective Model Year 2020 Vehicles

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## How to Read Warranty Coverage

|                 |   |                                   |
|-----------------|---|-----------------------------------|
| Number of Years | Mileage (in thousands)<br>Unl=Unlimited | P=Parts Only<br>P&L=Parts & Labor |
|-----------------|---|-----------------------------------|

**Notice:**

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

### Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).



# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- Bulk Hauler
- Chip Hauler (Truck)\*
- Doubles
- Flatbed
- General Freight
- Grain Hauler
- Livestock Hauler
- Moving Van
- Pipe Hauler
- Refrigerated Freight
- Tanker
- Triples

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/750/P&L

|        |               |                |                |                |                |
|--------|---------------|----------------|----------------|----------------|----------------|
| FD-965 | FF-967        | MFS-12-122B-N  | MFS-12-132C-N  | MFS-13-122B-N  | MFS-13B-122C-N |
| FF-941 | FG-941        | MFS-12-122C-N  | MFS-12E-132B-N | MFS-13-122C-N  | MFS-13B-132B-N |
| FF-942 | FG-943        | MFS-12E-122A-N | MFS-12E-132C-N | MFS-13-132B-N  | MFS-13B-132C-N |
| FF-943 | MFS-10-122A   | MFS-12E-122B-N | MFS-12-143A-N  | MFS-13-132C-N  | MFS-14-122A-N  |
| FF-944 | MFS-10-143A-N | MFS-12E-122C-N | MFS-12E-143A-N | MFS-13-143A-N  | MFS-14-124A-N  |
| FF-961 | MFS-10-144A-N | MFS-12-124A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-14-143A-N  |
| FF-966 | MFS-12-122A-N | MFS-12-132B-N  | MFS-13-122A-N  | MFS-13B-122B-N | MFS-14-144A-N  |

## Rear Drive Single Axles – 5/750/P&L

|                 |           |           |
|-----------------|-----------|-----------|
| RS-19-144/145/A | RS-21-145 | RS-23-160 |
| MS-19-14X       | RS-21-160 | RS-23-161 |
| MS-21-144       | MS-23-17X | RS-23-186 |

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

|                              |             |                     |
|------------------------------|-------------|---------------------|
| RT-34-144/P/A                | MA-40-165   | MT-40-14XHE         |
| RT-40-145/A                  | MA-40-175   | MT-40-144/P         |
| RT-40-160/P <sup>1,2</sup>   | MT-34-14X/P | MT-40-943           |
| RT-46-160/P <sup>1,2</sup>   | MT-40-14T/P | MT-40-943-SP        |
| RT-46-164EH/P <sup>1,2</sup> | MT-40-14X/P | RZ-166 <sup>2</sup> |
| RT-50-160/P <sup>1,2</sup>   | MT-40-14X/P | RZ-188              |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 5/500/P, 1/Unl/P&L |
| MXL  | 3/350/P, 1/Unl/P&L |
| 155N | 1/Unl/P            |
| 92N  | 1/Unl/P            |

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# LINEHAUL WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                                | 5/500/P, 1/100/L            |
| Q+ Drum Brake™   | 5/500/P, 1/Unl/P&L          |
| ASA  | 5/500/P, 1/Unl/P&L          |
| Hubs/Cast Drums and Other Wheel-end Components             | 1/Unl/P                     |
| Hydraulic Disc Brakes                                      | 1/Unl/P                     |
| All Other Brakes   | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>                      | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™  | 5/500/P, 1/Unl/L            |
| EX+ Air Disc Brake Extended Standard Warranty <sup>3</sup> | 5/500/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies only to MA761 friction material code CD brake assembly i.e. EX225LXXXCDXXX

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets              | 5/500/P, 1/100/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System <sup>2</sup>   | 1/100/P&L        |
| PreSet by Meritor <sup>3</sup> | 5/500/P&L        |
| AxlePak5 <sup>4</sup>          | 5P/L             |
| AxlePak7 <sup>5</sup>          | 7P/L             |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

|                                    |           |
|------------------------------------|-----------|
| TQ, TQD, TR, TRD Beam and Brackets | 5/750/P&L |
|------------------------------------|-----------|

<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/100/P&L        |
| PinLoc Actuator                                   | 3/300/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs & Rebound Straps                      | 2/200/P, 1/100/L |
| Bushings  | 5/500/P, 3/300/L |

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> “Curbing damage” is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.





# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

- Auto Hauler
- Beverage Truck
- Chip Hauler
- Cross Country Coach
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Newspaper Delivery
- Pick-Up and Delivery
- Pipe Hauler
- Platform Auto Hauler
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Trailer
- Tour Bus
- Wrecker

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 2/Unl/P&L

|                     |              |                |                |                |                |
|---------------------|--------------|----------------|----------------|----------------|----------------|
| FD-965              | FL-943       | MFS-8-163B-N   | MFS-12E-132B-N | MFS-13-132C-N  | MFS-16-143A-N  |
| FF-941              | MFS-6-151A-N | MFS-10-122A    | MFS-12-132C-N  | MFS-13B-132B-N | MFS-18-133A-N  |
| FF-942              | MFS-6-153B-N | MFS-10-143A-N  | MFS-12E-132C-N | MFS-13B-132C-N | MFS-18-135A-N  |
| FF-943              | MFS-6-162B-N | MFS-10-144A-N  | MFS-12-143A-N  | MFS-13-143A-N  | MFS-18-193A-N  |
| FF-944              | MFS-6-153C-N | MFS-12-122A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-20-133A-N  |
| FF-946              | MFS-6-162C-N | MFS-12E-122A-N | MFS-12E-143A-N | MFS-14-122A-N  | MFS-20-135A-N  |
| FF-961              | MFS-7-113C-N | MFS-12-122B-N  | MFS-13-122A-N  | MFS-14-124A-N  | MFS-20-192A-N  |
| FF-966              | MFS-7-153C-N | MFS-12E-122B-N | MFS-13-122B-N  | MFS-14-143A-N  | MFS-20-193A-N  |
| FG-967              | MFS-7-163C-N | MFS-12-122C-N  | MFS-13B-122B-N | MFS-14-144A-N  | MFS-22-135A-N  |
| FG-941              | MFS-8-113B-N | MFS-12E-122C-N | MFS-13-122C-N  | MFS-16-122A-N  | MFS-22H-135A-N |
| FH-941              | MFS-8-143A-N | MFS-12-124A-N  | MFS-13B-122C-N | MFS-16-133A-N  | MFS-22-193A-N  |
| FH-946 <sup>1</sup> | MFS-8-153B-N | MFS-12-132B-N  | MFS-13-132B-N  | MFS-16-135A-N  | MFS-22H-193A-N |
| FL-941              |              |                |                |                |                |

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Front Drive/Non-Drive Steer Axles – 1/Unl/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

## Rear Drive Tandem/Tridem - 3/Unl/P&L

|               |             |
|---------------|-------------|
| RT-40-160/P   | RT-50-160/P |
| RT-46-160/P   | RZ-166      |
| RT-46-164EH/P |             |

## Rear Drive Axles – 1/Unl/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 4/400/P, 1/Unl/P&L |
| MXL  | 3/350/P, 1/Unl/P&L |
| 155N | 1/Unl/P            |
| 92N  | 1/Unl/P            |

## Rear Drive Single Axles – 2/Unl/P&L

|                 |             |                        |              |              |
|-----------------|-------------|------------------------|--------------|--------------|
| MS-17-13X       | MS-21-14X   | RC-23-160              | RS-24-160    | MS-30-616-SP |
| MS-17-14X       | MS-21-144   | RC-23-161              | RC-25-160    | RS-35-380    |
| MS-19-13X       | MS-23-17X   | RC-23-162 <sup>1</sup> | RS-26-185    | 71162        |
| MS-19-14X       | RS-21-145/A | RC-23-165 <sup>1</sup> | MS-26-616    | 71163        |
| RS-17-144/145/A | RS-21-160   | RS-23-160              | MS-26-616-SP | 79163        |
| RS-19-144/145/A | RC-22-145   | RS-23-161              | RS-30-185    |              |
| MS-21-13X       | RC-22-145/A | RS-23-186              | MS-30-616    |              |

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

|               |             |                        |                        |
|---------------|-------------|------------------------|------------------------|
| MT-34-14X/P   | MT-40-14XHE | RT-44-145/P            | MT-58-616              |
| RT-34-144/P/A | MT-40-144/P | RT-46-169              | RT-58-185 <sup>1</sup> |
| MT-40-14T/P   | RT-40-145/A | MT-52-616              | MT-70-380              |
| MT-40-14X/P   | MT-44-14X/P | RT-52-185 <sup>1</sup> | RZ-188                 |

## Transmission – 1/Unl/P&L

|     |        |
|-----|--------|
| 516 | FAT 30 |
|-----|--------|

## PTO – 1/Unl/P&L

|         |         |          |
|---------|---------|----------|
| MPT-318 | MPT-526 | MPT-1702 |
| MPT-500 | MPT-531 | MPT-175  |
| MPT-510 | MPT-543 | MPT-185  |
| MPT-518 | MPT-170 | MPT-190  |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                    | 3/Unl/P, 1/Unl/L            |
| Cam P <sup>3</sup>                             | 2/200/P                     |
| Cam  | 3/Unl/P                     |
| Q+ Drum Brake™                                 | 3/Unl/P&L                   |
| Q+ Drum Brake™ <sup>3</sup>                    | 2/200/P&L                   |
| ASA  | 3/Unl/P                     |
| ASA <sup>3</sup>                               | 2/200/P                     |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P                     |
| Hydraulic Disc Brakes                          | 1/Unl/P                     |
| All Other Brakes                               | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>          | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™                            | 2/Unl/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |
| AxlePak <sup>4</sup>           | 5/P&L            |
| AxlePak <sup>5</sup>           | 7/P&L            |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

|                                |                  |
|--------------------------------|------------------|
| Beam & Brackets                | 6/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System                | 1/Unl/P&L        |
| AxlePak7                       | 7/P&L            |
| Beam and Brackets              | 7/P, 1/L         |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/Unl/P&L        |
| PinLoc Air Actuator                               | 3/Unl/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs and Rebound Straps                    | 2/Unl/P, 1/Unl/L |
| Bushings <sup>3</sup>                             | 5/Unl/P, 3/Unl/L |

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

|   |                  |
|---|------------------|
| TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup> | 3/Unl/P, 1/Unl/L |
| MC14002, MC16003, FH946                         | 2/Unl/P&L        |

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/Unl/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Heavy Service/Specialty Vehicle

- Airport Rescue Fire Fighting (ARFF)
- Airport Shuttle\*
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Mixer
- Demolition
- Drill Rig
- Dump
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Rear Loader (Refuse)
- Recycling Truck
- Residential Pick-Up (Refuse)
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus\*
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Utility Truck
- Winch Truck

\*Commercial chassis only

### Heavy Service/Specialty Vehicle Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

### Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

|        |              |                |                |               |                |               |
|--------|--------------|----------------|----------------|---------------|----------------|---------------|
| FD-965 | FL-941       | MFS-10-143A-N  | MFS-12-143A-N  | MFS-13-144A-N | MFS-18-193A-N  | MX-12-120     |
| FF-941 | FL-943       | MFS-10-144A-N  | MFS-12-144A-N  | MFS-13-155    | MFS-20-133A-N  | MX-12-120 EVO |
| FF-942 | MFS-6-151A-N | MFS-12-122     | MFS-12-155     | MFS-14-122    | MFS-20-135A-N  | MX-14-120     |
| FF-943 | MFS-6-153B   | MFS-12E-122    | MFS-13-122     | MFS-14-124A-N | MFS-20-192A-N  | MX-16-120     |
| FF-944 | MFS-6-162B   | MFS-12-122B-N  | MFS-13-122B-N  | MFS-14-143A-N | MFS-20-193A-N  | MX-18-120     |
| FF-946 | MFS-6-162C   | MFS-12E-122B-N | MFS-13B-122B-N | MFS-14-144A-N | MFS-22-135A-N  | MX-17-140     |
| FF-961 | MFS-7-113C-N | MFS-12-122C-N  | MFS-13-122C-N  | MFS-16-122A-N | MFS-22H-135A-N | MX-19-140     |
| FF-966 | MFS-7-153C-N | MFS-12E-122C-N | MFS-13B-122C-N | MFS-16-133A-N | MFS-22-193A-N  | MX-21-140     |
| FF-967 | MFS-7-163C-N | MFS-12-124A-N  | MFS-13-132B-N  | MFS-16-135A-N | MFS-22H-193A-N | MX-21-160     |
| FG-941 | MFS-8-113B-N | MFS-12-132B-N  | MFS-13B-132B-N | MFS-16-143A-N | RF-16-145      | MX-23-160     |
| FG-943 | MFS-8-153B-N | MFS-12E-132B-N | MFS-13-132C-N  | MFS-18-133A-N | RF-21-160      | MX-810        |
| FH-941 | MFS-8-163B-N | MFS-12-132C-N  | MFS-13B-132C-N | MFS-18-135A-N | MX-10-120      |               |
| FH-946 | MFS-10-122A  | MFS-12E-132C-N | MFS-13-143A-N  | MFS-18-192A-N | MX-10-120 EVO  |               |

### Front Drive/Non-Drive Steer Axles – 1/Unl/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

### Rear Drive Axles – 1/Unl/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

### Drivelines

|     |                    |
|-----|--------------------|
| RPL | 3/Unl/P, 1/Unl/P&L |
| 92N | 1/Unl/P&L          |
| MXL | 1/Unl/P&L          |

### Rear Drive Single Axles – 2/Unl/P&L

|                 |               |               |              |
|-----------------|---------------|---------------|--------------|
| MS-17-14X       | RS-21-160     | RS-24-160     | MS-35-380    |
| RS-17-144/145/A | RC-22-145     | RS-25-160     | RS-38-380    |
| MS-19-14X       | RC-23-160     | MS-26-616     | RC-25-160    |
| RS-19-144       | RH-23-160     | MS-26-616-SP  | RC-26-633    |
| MS-21-114       | RS-23-160     | RS-26-185/380 | MT-58-616    |
| MS-21-14X       | RC-23-161     | MS-30-616     | MT-58-616-SP |
| RS-21-145       | RS-23-161     | MS-30-616-SP  |              |
| RS-21-145/A     | RS-23-186/380 | RS-30-185/380 |              |

### Transmission – 1/Unl/P&L

|                            |         |          |
|----------------------------|---------|----------|
| 516                        |         |          |
| FAT 30                     |         |          |
| <b>PTO – 1/Unl/P&amp;L</b> |         |          |
| MPT-318                    | MPT-526 | MPT-1702 |
| MPT-500                    | MPT-531 | MPT-175  |
| MPT-510                    | MPT-543 | MPT-185  |
| MPT-518                    | MPT-170 | MPT-190  |



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

|               |              |                              |           |
|---------------|--------------|------------------------------|-----------|
| MT-34-14X/P   | RT-44-145/P  | RT-52-185/380 <sup>1,2</sup> | MT-70-380 |
| RT-34-144/P/A | RT-46-169    | MT-58-616                    | RZ-188    |
| MT-40-14X/P   | RT-58-160    | MT-58-616-SP                 |           |
| RT-40-145/A   | MT-52-616    | RT-58-185/380 <sup>1,2</sup> |           |
| MT-44-14X/P   | MT-52-616-SP | RT-70-380                    |           |

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam P  | 3/Unl/P   |
| Cam P <sup>3</sup>                             | 2/100/P   |
| Cam Cast Plus™                                 | 2/100/P&L |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| Q+ Drum Brake™ <sup>2</sup>                    | 2/100/P&L |
| ASA  | 3/Unl/P   |
| ASA <sup>2</sup>                               | 2/100/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake                             | 2/100/P&L |

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Rear Drive Tandem/Tridem - 3/Unl/P&L

|                                |
|--------------------------------|
| RT-40-160/P/A <sup>3</sup>     |
| RT-46-160/P/A <sup>1,3</sup>   |
| RT-46-164EH/P/A <sup>2,3</sup> |
| RT-50-160/P/A <sup>3</sup>     |
| RZ-166                         |

<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|  |                  |
|--|------------------|
| MTA (Trailing Arm)                       |                  |
| Major Structural Components <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Height Control Valve                     | 1/Unl/P&L        |
| Shock Absorbers                          | 2/Unl/P&L        |
| Air Springs                              | 2/Unl/P, 1/Unl/L |
| Bushings <sup>1</sup>                    | 5/Unl/P, 3/Unl/L |

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Gearboxes – 1/Unl/P&L

|          |         |         |         |         |         |
|----------|---------|---------|---------|---------|---------|
| MGX-240  | MGX-376 | MGX-448 | MGX-506 | MGX-528 | MGX-546 |
| MGX-279  | MGX-377 | MGX-456 | MGX-514 | MGX-533 | MGX-550 |
| MGX-279D | MGX-378 | MGX-478 | MGX-519 | MGX-534 |         |
| MGX-280  | MGX-380 | MGX-480 | MGX-520 | MGX-536 |         |
| MGX-285  | MGX-384 | MGX-487 | MGX-522 | MGX-537 |         |
| MGX-292  | MGX-402 | MGX-488 | MGX-524 | MGX-541 |         |
| MGX-314  | MGX-413 | MGX-505 | MGX-527 | MGX-545 |         |

## Transfer Cases – 1/Unl/P

|                                  |                          |                          |
|----------------------------------|--------------------------|--------------------------|
| MTC-4213                         | MTC-3118-CV (358)        | MTC-3209-GV (RTC-60/420) |
| MTC-4210                         | MTC-3120-FV (TC-143)     | MTC-3209-GV (RTC-60/380) |
| MTC-4208                         | MTC-3124 (T-2119)        | MTC-3209-GV (MTC-60/420) |
| MTC-4206-FV (TC-38)              | MTC-3205-GV (MTC-25/247) | MTC-3209-GV (MTC-60/380) |
| MTC-3106-FV (TC-137)             | MTC-3205-GV (MTC-25/350) | MTC-3212-CV (315 & 548B) |
| MTC-3111 (T-2111)                | MTC-3205-GV (RTC-25/350) | MTC-3312-FV (TC-270)     |
| MTC-3112-CV (529 & 548C)         | MTC-3206-FV (TC-237)     | MTC-3220-FC (TC-142)     |
| MTC-3116 (T-2111)                | MTC-3206-CS (544)        | MTC-2212-CV (306)        |
| MTC-3118-FV (TC-180 & TC-180-23) | MTC-3208-GV (RTC-50)     |                          |



# FIRE AND EMERGENCY WARRANTY INFORMATION

## Fire and Emergency Vehicles

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Command Vehicle
- Crash Fire Rescue (CFR)
- Pumper
- Rapid Intervention Vehicle (RIV)
- Tanker

## Fire and Emergency Typically Is

- Lower mileage operations (less than 20,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/Unl/P&L

|               |               |                |
|---------------|---------------|----------------|
| FL-941        | MFS-18-193A-N | MFS-22-135A-N  |
| FL-943        | MFS-20-133A-N | MFS-22H-135A-N |
| MFS-18-133A-N | MFS-20-135A-N | MFS-22-193A-N  |
| MFS-18-135A-N | MFS-20-193A-N | MFS-22H-193A-N |

## Front Drive Steer Axles – 2/Unl/P&L

|          |          |          |
|----------|----------|----------|
| MX-19140 | MX-21160 | MX-23810 |
| MX-21140 | MX-23160 |          |

## Rear Drive Single Axles – 5/Unl/P&L

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| RC-23-160 | RS-23-186 | RS-26-185 | RS-25-160 |
| RS-23-160 | RS-24-160 | RS-30-185 |           |
| RS-23-161 | RC-25-160 | RS-35-380 |           |

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 5/Unl/P&L

|             |               |                        |
|-------------|---------------|------------------------|
| MT-40-14X/P | RT-44-145/P   | MT-52-616              |
| MT-40-144/P | RT-46-160/P   | RT-52-185 <sup>1</sup> |
| RT-40-145/A | RT-46-164EH/P | MT-58-616              |
| RT-40-160/P | RT-46-169     | RT-58-185 <sup>1</sup> |
| MT-44-14X/P | RT-50-160/P   | MT-70-380              |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam  | 3/Unl/P   |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| ASA  | 3/Unl/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake™                            | 2/Unl/P&L |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

## Drivelines

|      |                  |
|------|------------------|
| RPL  | 4/400/P, 1/Unl/L |
| MXL  | 3/350/P, 1/Unl/L |
| 155N | 1/Unl/P          |
| 92N  | 1/Unl/P          |

## Transfer Cases – 1/Unl/P

|          |                   |
|----------|-------------------|
| MTC-4208 | MTC-3111 (T-2111) |
| MTC-4210 | MTC-3116 (T-2111) |
| MTC-4213 | MTC-3124 (T-2119) |



# TRANSIT BUS WARRANTY INFORMATION

## Transit Bus Vehicles

- Airport Shuttle
- City Bus
- Commuter Coach
- Shuttle Bus
- Transit Bus
- Trolley

## Transit Bus Typically Is

- Moderate mileage operation (less than 50,000 miles per year)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 5/300/P&L

FH-946                      MFS-12-155  
 FH-941<sup>1</sup>                     MFS-13-155

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Drivelines

RPL                                      3/Unl/P, 1/Unl/L  
 92N                                        1/Unl/P&L  
 MXL                                        1/Unl/P&L

## Rear Drive Single Axles – 5/300/P&L

RS-23-160                    79163                                      RS-21-160  
 RC-23-161                    RC-23-162<sup>1</sup>  
 71163                                RC-23-165<sup>1</sup>

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Tag Axles – 2/Unl/P&L

MC-14002  
 MC-16003  
 FH-946

## Brake Components

Cam Cast Plus™                      2/100/P&L  
 Q+ Drum Brake™<sup>1</sup>                    2/100/P&L  
 ASA<sup>1</sup>                                        2/100/P  
 Hubs/Cast Drums and  
 Other Wheel-end  
 Components                                1/Unl/P  
 All Other Brakes                            1/Unl/P  
 EX+ Air Disc Brake                      2/100/P&L

<sup>1</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

## Center Non-drive Axles – 5/300/P&L

MC-26000  
 71063  
 79063







# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.



# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Heavy Vehicle Systems, LLC warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number 1 and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not branded by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Product models, brands, names and trademarks depicted herein are the property of their respective owners and, except where otherwise indicated, are not in any way associated with Meritor Heavy Vehicle Systems, LLC, or any parent or affiliate, thereof.



Meritor Heavy Vehicle Systems, LLC  
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or visit [meritor.com](http://meritor.com)

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# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Meritor Wabco ABS Brake System Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | The Meritor Wabco ABS brake system shall be covered by Meritor Wabco as indicated in the attached Meritor Wabco warranty coverage description |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Three (3) Year  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | The exclusions listed in the attached Meritor Wabco warranty description shall apply.   |

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.



# **MERITOR WABCO**

*Safety Strong. Efficiency Smart.*

**Warranty**  
**Model Year 2018 Vehicles**

## SIMPLER IS BETTER

Warranty coverage is essential to protecting your investment. But understanding the full details of your coverage can be challenging. This straightforward approach allows you, our valued customer, to better understand how your specific vehicle applications will be covered in your region. Our component warranty coverage is provided according to vocation/usage categories listed below.

- Linehaul covers high mileage operation (over 60,000 miles/year) on well maintained major highways of concrete or asphalt construction.
- General Service covers moderate mileage operations (less than 60,000 miles/year) on well maintained public roads (less than 10 percent off-road) typically with less than three (3) stops per mile.
- Heavy Service (Vocational) covers vehicles with more than 10 percent off-road OR moderate to frequent starts/stops typically with more than three (3) stops per mile.
- Off-Highway Service covers lower mileage operations. Vehicles are not typically licensed for highway use.

# CONTENTS

- Linehaul Service..... 4
- General Service..... 4
- Heavy Service ..... 5
- Industrial/Off-Highway Service ..... 6
- Terms and Conditions ..... 7

## How to Read Warranty Coverage (Example)

| Number of Years | Mileage (in thousands)<br>Unl=Unlimited | P=Parts Only<br>P&L=Parts & Labor |
|-----------------|---|-----------------------------------|
| 3               | 300                                     | P                                 |



## HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

### Heavy Service Vehicles

- Airport Rescue Fire (ARF)
- Airport Shuttle
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- City Bus
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Crash Fire Rescue (CFR)
- Mixer
- Demolition
- Drill Rig
- Dump
- Emergency Service
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Newspaper Delivery
- Package Delivery
- Pick-up and Delivery
- Rapid Intervention Vehicle (RIV)
- Rear Loader
- Recycling Truck
- Residential Pick-Up/Waste
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Transit Bus
- Trolley
- Utility Truck
- Winch Truck

### Heavy Service Typically Is

- On/Off road vocations (10% or more off-road) OR
- Moderate to frequent starts/stops typically more than three (3) stops per mile

### Meritor WABCO Components<sup>1</sup>

|  |           |
|--|-----------|
| ABS (Anti-Lock Braking System) Air       | 3/300/P&L |
| ABS (Anti-Lock Braking System) Hydraulic | 2/200/P&L |
| Electronic Braking System (EBS)          | 3/300/P&L |
| Electronic Stability Control (ESC)       | 3/300/P&L |
| Roll Stability Control (RSC)             | 3/300/P&L |
| Air Dryers (ALL)                         | 1/100/P&L |
| Leveling Valves                          | 1/100/P&L |
| Air Brake Valves                         | 1/100/P&L |
| Emission Valves (SCR)                    | 2/200/P&L |
| Clutch Controls                          | 2/200/P&L |
| Air Compressors (ALL) <sup>2</sup>       | 1/100/P&L |
| OnGuard™                                 | 3/300/P&L |
| OnGuardACTIVE™                           | 3/300/P&L |
| OnLane™ Lane Departure Warning           | 3/300/P&L |
| Blind Spot Detection                     | 3/300/P&L |
| OptiRide™                                | 2/200/P&L |
| Trailer Roll Stability Support (RSS)     | 3/300/P&L |
| Trailer Control Line Filter <sup>3</sup> | 1/100/P&L |
| Trailer ABS Valve <sup>3</sup>           | 3/300/P&L |

<sup>1</sup> WABCO and Meritor WABCO branded components.

<sup>2</sup> WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

<sup>3</sup> An extended warranty of 4/400/P will be applied when a Meritor WABCO Trailer Control Line Filter is used in combination with a Meritor WABCO Trailer ABS valve.



# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered product due to the following: (1) damage to the product or its component parts caused by incorrect use, installation, maintenance or repair, including without limitation (a) improper fit of mating components or brackets, (b) damaged threads, (c) cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (d) damaged sensors from removal when seized in block, or associated with sensor adjustments/alignments, and (e) damage resulting from the use or installation of non-genuine Meritor WABCO components or materials; (2) damage to the product, its component parts, or diminished product or component part performance due to incorrect operation, deviation from approved conditions or misapplication; (3) any unauthorized disassembly of the product or its component parts including without limitation (a) obliterated, defaced or missing WABCO or Meritor WABCO name plate, serial numbers or label identifying the device as a Meritor WABCO product or WABCO component, (b) changes to sealed adjusting screws, and (c) opening or attempted repair of non-serviceable components; (4) malfunction of the component due to internal contamination out of the vehicle system including without limitation (a) water and other contamination damage that is due to the use of a non-genuine air dryer cartridge or (b) valve failures due to contamination in air system, (5) complaints associated with noise, (6) damage resulting from corrosion (including oxidation of electrical devices and connections).

#### Air Dryers

Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.

#### Air System Components

Normal wear items; Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals.

### ABS, Electronic Stability Control (ESC), Roll Stability Control (RSC), OptiRide™, OnGuard™ and OnLane™, collectively “Electronics”

Failure of electronic components due to overvoltage condition, improper grounding, electrostatic discharge (ESD), improper shielding, electromagnetic interference (EMI), or other wiring or installation issues.

Malfunctions and failure codes caused by other electronic subsystem failures (data bus, engine, transmission, dashboard, etc.)

### Hydraulic Components

For certain components, brake fluid DOT3 or DOT4 is used as the operating medium. Use of any other fluid will void all warranties associated with that component. For hydraulic braking applications the brake fluid is considered a maintenance item. Maintenance intervals are listed in TB-1367.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.

Products purchased on an incomplete vehicle (glider) are limited to one year, 1/Unl/P.

For vehicles that operate full- or part-time outside of the United States and Canada, a 1-Year/Unlimited Miles parts only (1/Unl/P) will apply.

### TOOLBOX™ Software

Proper diagnostics of Meritor WABCO Electronics may require the latest version of TOOLBOX™. Additional labor due to use of an outdated version of TOOLBOX™. TOOLBOX™ software, and/or the time to purchase or install latest version of TOOLBOX™ are not covered under product warranty.

## TERMS AND CONDITIONS

### (1) What is Covered by this Commercial Warranty?

Meritor WABCO Vehicle Control Systems warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment will be free from defects in material and workmanship. This warranty coverage begins from the original in-service date to the limits provided and runs concurrently with any warranties provided by OEMs and/or any service contracts that cover the components listed in this publication, if any. If the components listed in this publication are covered by an OEM warranty and/or service contract, then the OEM's warranty and/or service contract shall supersede Meritor WABCO's warranty and Owner shall comply with all OEM's warranty and/or service contract requirements for claims under such OEM's warranty and/or service contract until those agreements expire. Once those agreements expire and provided the Meritor WABCO warranty has not expired under the terms stated above, the Meritor WABCO warranty would be in effect until its expiration date.

Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed previously in this publication. Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Additional diagnostic time due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are the responsibility of the authorized Meritor WABCO service location and are not covered under product warranty. Components installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

### (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor WABCO through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor WABCO components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor WABCO directly. Failure to notify Meritor WABCO of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor WABCO as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor WABCO or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor WABCO's warranty requires that the application of products be properly approved pursuant to OEM and Meritor WABCO, approvals.

### (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

### (4) What is not Covered by this Warranty?

In addition to the items listed on page 7, this warranty does not cover normal wear and tear, or service items; nor does it cover a component that fails, malfunctions or is damaged as a result of

(a) improper handling, storage, installation, adjustment, repair or modification including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor WABCO, (b) accident, fire or other casualty, natural disaster, road debris, negligence, misuse, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the brake system capacity), or (c) improper or insufficient maintenance (including deviation from maintenance intervals, approved lubricants, or lube levels). This warranty does not cover any component or part that is not sold by Meritor WABCO.

### (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor WABCO's option. Meritor WABCO reserves the right to require that all applicable covered components are available and/or returned to Meritor WABCO for review and evaluation.

### (6) DISCLAIMER OF WARRANTY.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. SOME STATES LIMIT OR DO NOT ALLOW THE DISCLAIMER OF IMPLIED OR OTHER WARRANTIES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (7) LIMITATION OF REMEDIES.

IN NO EVENT SHALL MERITOR WABCO BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES OF ANY KIND OR UNDER ANY LEGAL THEORY, INCLUDING, BUT NOT LIMITED TO, TOWING, DOWNTIME, LOST PRODUCTIVITY, CARGO DAMAGE, TAXES, LOST PROFITS, COSTS OF PROCUREMENT OF A SUBSTITUTE COMPONENT OR ANY OTHER LOSSES OR COSTS RESULTING FROM A COVERED COMPONENT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (8) TIME LIMIT ON COMMENCING LEGAL ACTION.

ANY LEGAL ACTION OR CLAIM ARISING FROM OR RELATED TO THIS WARRANTY, IN CONTRACT OR OTHERWISE, MUST BE COMMENCED WITHIN ONE YEAR FROM THE ACCRUAL OF THAT CAUSE OF ACTION, OR BE BARRED FOREVER.

### (9) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor WABCO or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor WABCO service location. The dealer will inspect the vehicle and contact Meritor WABCO for an evaluation of the claim. When authorized by Meritor WABCO, the dealer will repair or replace during the term of this warranty any defective Meritor WABCO component covered by this warranty.

### (10) Entire Agreement.

This is the entire agreement between Meritor WABCO and the Owner about warranty and no Meritor, Meritor WABCO employee, or dealer is authorized to make any additional warranty on behalf of Meritor WABCO unless in writing and signed by an authorized representative of Meritor WABCO.



For more information on  
Meritor WABCO Warranty, call  
our OnTrac Customer Service team  
at 866-OnTrac1 (866-668-7221)  
or visit [meritorwabco.com](http://meritorwabco.com).



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity

### Custom Cab

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | The Pierce Custom Cab shall be free from structural failures caused by defects in material and workmanship  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Ten (10) Years<br>- or -<br>100,000 Miles   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty applies only to the cab tubular support and mounting structures and other structural components of the cab of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.<br><br>This warranty does not apply to damage caused by corrosion. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Cab

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| Coverage:  | Exterior surfaces of the cab painted by Pierce shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.   |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).  |
| Warranty Period Ends After:                                    | Ten (10) Years   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | <p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b><br/> 0-72 months 100%<br/> 73-96 months 50%<br/> 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b><br/> 0-36 months 100%<br/> 37-84 months 50%<br/> 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b><br/> 0-36 months 100%<br/> 37-48 months 50%<br/> 49-72 months 25%<br/> 73-120 months 10%</p> <p><b>Corrosion Perforation</b><br/> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include:<br/> (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).<br/> (b) UV paint fade.<br/> (c) Any cab not manufactured by Pierce.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship

### Command Zone Electronics

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Command Zone control modules shall be free from failures caused by defects in material and workmanship  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Five (5) Years  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This limited warranty applies to all of the control modules for the Command Zone system, including the full color graphic displays. Related wire harnesses, cables and connectors are not covered under this limited warranty and are instead covered under the Pierce One Year Basic Apparatus Limited Warranty. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## 54 Months Material and Workmanship

### Camera System

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| <b>Coverage:</b>   | <b>This limited warranty covers repairs to correct any defect related to materials or workmanship of the Sharpvision camera system installed on the apparatus occurring during the warranty period.</b> |
| <b>Warranty Begins:</b>  | <b>The date of delivery.</b>  |
| <b>Warranty Period Ends After:</b>   | <b>Fifty - Four (54) months</b>   |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <b>This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.</b>                           |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship

### Pierce 12V LED Strip Light

#### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| <b>Coverage:</b>   | This limited warranty covers repairs to correct any defect related to materials or workmanship of the Pierce 12V LED strip lights installed on the apparatus occurring during the warranty period. |
| <b>Warranty Begins:</b>  | The date of the original purchase invoice (issued when the product ships from the factory).  |
| <b>Warranty Period Ends After:</b>   | Ten (10) Year  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.                             |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



## NEW PRODUCT WARRANTY



**PARTICIPATING OEM SALES  
DISTRIBUTOR SALES**

### LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Emergency Vehicle in accordance with the following terms, conditions, and limitations.

#### WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Emergency Vehicle and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission’s option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section “APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE.”
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

**Demonstration Service** - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

#### APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

| APPLICABLE MODELS   | WARRANTY LIMITATIONS<br>(Whichever occurs first) |                                     | ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER |           |
|---|--|-------------------------------------|--|-----------|
|   | Months   | Transmission Miles<br>Or Kilometers | Parts  | Labor     |
| MT, MD<br>3000, 3200, 3500, 3700  | 0-24   | No Limit                            | No Charge                                    | No Charge |
| HT with Hydraulic Controls  | 0-24   | No Limit                            | No Charge                                    | No Charge |
| AT, 1000 Series™, 2000 Series™,<br>2400 Series™   | 0-36   | No Limit                            | No Charge                                    | No Charge |
| HT with Electronic Controls   | 0-60   | No Limit                            | No Charge                                    | No Charge |
| HD<br>1000 EVS, 2100 EVS, 2200 EVS<br>2350 EVS, 2500 EVS, 2550 EVS,<br>3000 EVS, 3500 EVS, 4000,<br>4000 EVS, 4500, 4500 EVS, 4700,<br>4700 EVS, 4800, 4800 EVS | 0-60   | No Limit                            | No Charge                                    | No Charge |

## WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
  - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
  - Misuse of the vehicle;
  - Installation into unapproved applications and installations;
  - Alterations or modification of the transmission or the vehicle, and
  - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
  - Anything other than defects in Allison Transmission material or workmanship

**NOTE:** This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
  - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
  - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

## OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions.

**ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.\*\***

\*\* Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

## OTHER TERMS APPLICABLE TO OTHER END-USERS

**THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.**

## QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission, Inc.  
P.O. Box 894  
Indianapolis, IN 46206-0894  
Attention: Warranty Administration PF-9





# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship - Transmission Oil Cooler Three (3) Year Collateral Damage Coverage

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| <b>Coverage:</b>   | <b>The transmission cooler shall be free from component or structural failures caused by defects in material and/or workmanship. Collateral damage up to \$10,000 per occurrence is available for the first three (3) years.</b>   |
| <b>Warranty Begins:</b>  | <b>The date of delivery to the first retail purchaser.</b>   |
| <b>Warranty Period Ends After:</b>   | <b>Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage</b>  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> <p>Towing is covered to the nearest distributor or authorized dealer only when necessary to prevent further damage to your transmission.</p> <p>Labor costs for the removal and reinstallation of goods may be covered when necessary to make repairs. Please contact your OEM for authorization.</p> <p>Replacement of cooler during the warranty period is limited to 100% of reasonable labor costs up to a maximum of \$700 to remove, replace, or repair the oil cooler.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

 **UNITED PLASTIC FABRICATING, INC.**  
**WARRANTY**  
**FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™**

## LIFETIME SERVICE WARRANTY

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines. Failure to do so can void the warranty.

Every UPF Tank is inspected and tested before leaving our facility. Should your UPF Tank require service, please notify UPF via email, fax, in writing or by calling UPF at 1-978-975-4520. Please provide the serial number, a description of the service request, the location along with the phone number and name of the contact person. Our goal is to have scheduled work completed within a reasonable time period.

Under a valid warranty claim, UPF will cover the cost to repair the UPF Tank including the customary and reasonable costs to make the tank accessible such as the removal and reinstallation of the tank if authorized in advance (pre-approved) by UPF. The warranty will not cover tanks that have been improperly installed, operated, misused, abused, or modified from its intended or designed use. Serial number must not have been altered, defaced or removed. Tanks that are not stored or installed properly which results in the tank suffering UV damage will not be covered by this agreement.

Should UPF determine that the service claim is valid under this warranty for a tank located outside of the United States and Canada, UPF will assume the costs for labor and material for the warranty repair as described above plus all travel costs to the U.S. port of embarkation. Costs for airline travel outside of the U.S. and Canada will not be the responsibility of UPF.

In the event the tank shall become stationed in an area of the world that is considered to be a war zone or where unsafe conditions exist for the safe passage of United States Nationals, as reported by the United States Department of State, (<http://www.state.gov>), and a request to perform service or warranty repairs, UPF reserves the right to refuse to honor such requests. It is the purchaser's responsibility to relocate the tank to an area where such repairs can be performed without undue risk to UPF employees or their designee. UPF will make every reasonable effort to support our products through alternative means.

For Ellipse™ elliptical tanks, a separate five year warranty provided by the subcontractor is applied to the sub-frames, chute linings (rubber isolation strips) and metal components. The stainless steel wrap provided by UPF shall be warranted by the subcontractor performing the wrap installation in accordance with their warranty in place at the time of the installation. UPF will not be liable for any warranty costs associated with the wrap, sub-frames, chute linings (rubber isolation strips) and metal components but will assist with all claims on behalf of its customer.

For PolySide® wetsided tanks and Integrator™ Tank/Body units, all polypropylene components related to the tank shall carry the standard UPF lifetime



**UNITED PLASTIC FABRICATING, INC.**

**WARRANTY**  
**FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™**

service warranty. Other polypropylene components, including but not limited to compartments, wheel wells, fenders and other body related components shall be warranted by UPF for a period of ten years. The warranty for the PolySide® and Integrator™ units excludes paint or hardware, which shall be covered by the manufacturer of the paint/hardware.

All UPF tanks 50 gallons or less utilized for non-fire applications and installed on specialty vehicles such as ATVs, trailers, boats, etc. are covered under a separate warranty policy available from UPF. Further, UPF Protector™ foam and water trailers are warranted under a separate warranty policy available from UPF.

This UPF warranty is transferable within the United States only with prior written approval by UPF (except an original apparatus manufacturer may assign this warranty to the first titled owner/lessee of the apparatus).

**UPF will NOT reimburse any unnecessary work and/or work that has not been pre-approved. Any and all third party charges must be pre-authorized and approved in writing by UPF prior to commencing the work. Any unauthorized third party repairs, alterations, actions or modifications will not be covered and can void the warranty. UPF will be the sole determining authority as to whether a service claim will be valid and covered under this warranty.**

In no event will UPF be liable for an amount in excess of the purchase price of the booster/foam tank at the time of manufacture or for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of failure of its product. Loss of contents (water, foam, etc.) shall not be the responsibility of UPF. Further, UPF is not responsible for costs associated with service repairs to chassis, sub-frames, bodies, valves, dumps, hoses, pressure vacuum vents, and other components (i.e. liquid level transducers, etc.). Further, UPF will not cover the cost for travel of the vehicle to and from a repair facility.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly cancelled. UPF neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation or incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.

**THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATION OR LIABILITIES ON THE PART OF UPF.**



# BULLETIN

**TO: All Dealer Service Representatives**

**From: Kevin Hanegraaf**

**DATE: January 4, 2010**

**RE: UPF Tank Warranty Policy – Truck in Accident**

**Service Topic #292**



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To keep the UPF tank warranty valid on trucks that have been involved in a vehicular accident, it is UPF's policy that the customer must remove the tank from the truck and send it back to one of UPF's facilities for inspection. In the event that this does not take place, the warranty will be considered null and void.

The customer must remove and send the tank back to UPF for inspection in order to maintain the original warranty coverage, at which time it will be:

- Filled with water
- Visually inspected
- Ultraviolet spark tested on articulating test stand in the dark
- Recommendation for repairs if necessary provided by UPF
- Fully evaluated and repaired by UPF

If your customer chooses to leave the tank on the truck and wants a technician to inspect and/or repair the tank in the field, then **the warranty is no longer in effect.** This direction is upheld by UPF because the technician cannot inspect the entire tank when it is still installed on the truck.

**Note:** This memo is intended to relay the information Pierce has received on UPF's tank warranty for trucks that are in a vehicular accident. In the event of an actual claim, we direct you to consult with UPF's service Manager Maura Watts (800-638-8265 x253)



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity Apparatus Body

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | The apparatus body shall be free from structural failures caused by defects in material and workmanship   |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Ten (10) Years<br>- or -<br>100,000 Miles   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty applies only to the body tubular support and mounting structures and other structural components of the body of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.<br><br>This warranty does not apply to damage caused by corrosion. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





**Pierce Warranty Statement for Gortite Roll Up Doors Rev 2/24/2011**

All mechanical components of the door shall be warranted to be free from defects in materials and workmanship for the lifetime of the vehicle. All parts covered under this warranty shall be to the original owner.

A&A manufacturing warrants that painted doors shall be free of blistering, peeling, bubbling, or any other adhesion defect caused by defective manufacturing methods or paint material selection. The time period for the coverage shall be 6 years from date of door shipment to Pierce. Satin anodized finish doors shall be warranted for 6 years against corrosion defects from date of door shipment to Pierce. Replacement of decals/Scotchlite is not covered.

The maximum amount A&A will reimburse for labor is \$60.00 per hour and the maximum amount of time allowed for repair is as follows:

|                           |         |
|---------------------------|---------|
| Door                      | 1.0 Hr. |
| Slat Replacement          | 1.0 Hr. |
| Pennant Plate Replacement | 1.0 Hr. |
| Roller Replacement        | .5 Hr.  |
| Seal Replacement          | .5 Hr.  |
| Switch/Magnet Replacement | 1.0 Hr. |
| Travel Time               | 4.0 Hr. |

# Waterous Seven-Year Limited Warranty

WATEROUS warrants, to the original Buyer only, that products manufactured by WATEROUS will be free from defects in material and workmanship under normal use and service for a period of seven (7) years from the date the product is first placed in service, or seven and one-half (7-1/2) years from the date of shipment by WATEROUS, whichever period shall be the first to expire; provided the Buyer notifies WATEROUS, in writing, of the defect in said product within the warranty period, and said product is found by WATEROUS to be nonconforming with the aforesaid warranty. When required in writing by WATEROUS, defective products must be promptly returned by Buyer to WATEROUS at WATEROUS' plant at South St. Paul, Minnesota, or at such other place as may be specified by WATEROUS, with transportation and other charges prepaid. A Returned Material Authorization (RMA) is required for all products and parts and may be requested by phone, fax, email, or mail. The aforesaid warranty excludes any responsibility or liability of WATEROUS for:

- (a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes, use in non-firefighting applications, or improper maintenance, or attributable to written specifications or instructions furnished by Buyer;
- (b) defects in products manufactured by others and furnished by WATEROUS hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, WATEROUS will assign to Buyer, if requested by Buyer;
- (c) any product or part, altered, modified, serviced or repaired other than by WATEROUS, without its prior written consent;
- (d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation; and
- (e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, mechanical seals, etc.).

**ALL OTHER WARRANTIES ARE EXCLUDED, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER CAUSE OF ACTION, SHALL WATEROUS BE LIABLE FOR ANY PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR PERSONAL INJURY OR PROPERTY DAMAGES.**

The exclusive remedy of Buyer and the sole liability of WATEROUS, whether based on contract, warranty, tort or any other basis of recovery whatsoever, is expressly limited at the election of WATEROUS to:

- (a) the replacement at the agreed point of delivery of any product or part, which upon inspection by WATEROUS or its duly authorized representative, is found not to conform to the limited warranty set forth above, or
- (b) the repair of such product or part, or
- (c) the refund or crediting to Buyer of the net sales price of the defective product or part.

**BUYER'S REMEDIES CONTAINED HEREIN ARE EXCLUSIVE OF ANY OTHER REMEDY OTHERWISE AVAILABLE TO BUYER.**

Waterous Company  
125 Hardman Avenue South  
South St. Paul, MN 55075 USA  
[www.waterousco.com](http://www.waterousco.com)





# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship Stainless Steel Piping Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Stainless steel piping shall be free from structural failures caused by defects in material and workmanship, or perforation caused by corrosion.  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Ten (10) Years<br>- or -<br>100,000 Miles   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the stainless steel piping or components which Pierce determines to have failed due to defective material and workmanship, or perforation caused by corrosion.<br><br>This warranty does not cover the use of fluoroprotein (FP) type foam. The sodium chloride within FP foam can cause long-term damage to system components if not thoroughly flushed immediately after use. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship Foam System & Five (5) Year Material and Workmanship Control Head Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| Coverage:  | Limited warranty 1 year parts and labor for the foam system and 5 years parts and labor for the control head.  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).  |
| Warranty Period Ends After:                                    | One (1) Year & Five (5) Year   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | <p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



## MANUFACTURER'S LIMITED WARRANTY - HYDRAULIC GENERATORS

### STANDARD

Harrison Hydra-Gen® (Seller) extends to the original purchaser (Buyer) of goods for use (whether it be an OEM, dealer, re-seller, or end-user) the following warranty covering the Harrison Hydra-Gen® Generator System, subject to the qualifications indicated. Harrison Hydra-Gen® Generator Systems shall consist of a Harrison generator tray assembly and its' components, a Harrison hydraulic pump assembly, and a Harrison supplied meter assembly; unless otherwise specified in below guidelines.

Harrison Hydra-Gen® warrants the original purchaser that the Generator System manufactured or supplied by Harrison Hydra-Gen® will be free from defects in materials and workmanship, provided such goods are:

1. Installed, operated and maintained in accordance with the Harrison Hydra-Gen® owner's manual, and/or written installation addendums.
2. Each new application has been reviewed and approved by the Harrison Hydra-Gen® Application Engineering Group.

### PERIOD OF WARRANTY

\*Two (2) years or 2000 hours of usage, whichever comes first, from the date the product is shipped from Harrison to the Installer.

**\*The END USER must complete and return to Harrison Hydra-Gen® the Harrison Hydra-Gen® Warranty Registration Card, Form WR-1, provided in the generator manual and provided online @ [www.harrisonhydragen.com](http://www.harrisonhydragen.com), within 45 days of delivery.**

**Warranty includes all parts and labor.** In addition, maintenance items that are contaminated or damaged by a proven warrantable failure are covered in years 1-2, and Labor time up to 4 hours, travel time up to 2.5 hours, and mileage up to 100 miles for warranty related repairs are covered.



Repair or replacement parts are warranted for ninety (90) days from date of purchase, excluding labor and travel expenses. Any part repaired or replaced during the warranty period assumes the remainder of the warranty or ninety (90) days, whichever is greater.

Only components supplied by Harrison Hydra-Gen® are covered under this warranty.

There is no other express warranty. Implied warranties, including merchantability and fitness for a particular purpose, are limited to periods set forth above and to the extent permitted by law. Any and all implied warranties are excluded. In no event is Harrison Hydra-Gen® liable for incidental or consequential damages.

The Buyer (OEM, dealer, re-seller, or end-user) must notify Harrison Hydra-Gen®, an Authorized Distributor, or a designated Harrison Hydra-Gen® Service Representative, **in writing**, within thirty (30) calendar days after goods or parts failed to meet this warranty.

The sole liability of Harrison Hydra-Gen® and the Buyer's sole remedy for a failure of goods under this warranty and for any and all other claims arising out of the purchase and use of the goods, including negligence on the part of the manufacturer, shall be limited to the repair or replacement of the product, at the option of Harrison Hydra-Gen®, of the parts that do not conform to this warranty, provided that the product or parts are returned to the Harrison Hydra-Gen® manufacturing facility.

A Returned Goods Authorization (RGA) is required for all products and parts being returned, and may be requested by phone, fax, email, or mail.

Failure to make timely delivery to Harrison Hydra-Gen® of the goods claimed to be defective shall void any warranty.

Unless previous written agreements have been made between the Buyer and Harrison Hydra-Gen®, the Buyer shall be responsible for all freight and shipping charges in connection with the delivery of the goods claimed to be defective, to Harrison Hydra-Gen® at its manufacturing facility, and the return of repaired or replacement goods to the Buyer.

If Harrison Hydra-Gen® determines that no warranty coverage is available for goods claimed to be defective, whether determination is based on the warranty being voided, the product failure

being due to a cause not covered by the warranty, the failure to make a timely and proper warranty claim, or otherwise, the Buyer shall have the option of either:

1. Having the goods not repaired and returned to the Buyer, freight collect.
2. Having the goods repaired, If Harrison Hydra-Gen® determines that the product is repairable, and returned to the Buyer, freight collect. The Buyer will be responsible for all costs associated with the repair and testing of the goods and shall authorize Harrison Hydra-Gen®, in writing, to have the goods repaired and tested by Harrison Hydra-Gen®.

The owner is obligated to operate and maintain the goods in accordance with the recommendations published by Harrison Hydra-Gen® in the owner's manual. The owner is responsible for the costs associated with such maintenance and any adjustments that may be required.

This warranty shall not apply to:

1. Damages or defects caused by normal wear, accident, misuse, abuse, abnormal operating conditions, negligence, corrosion, accident causes, or attributable to written specifications or instructions furnished by the installer.
2. Damages or defects caused by improper maintenance in accordance with the Harrison Hydra-Gen® product manuals and operating guidelines.
3. Damages caused by operator error.
4. Damages or defects caused by improper installation.
5. Damages or defects caused by inadequate water drainage provided by the installer in the area where the generator is installed or stored.
6. Damages or defects caused by inadequate air flow space or ventilation provided by the installer in the area where the generator is installed.
7. Any product or part altered or modified by the installer or service facility without written prior consent by Harrison Hydra-Gen®.
8. Cost of normal maintenance, adjustments, installation or start-up.
9. Normal wear items and components needing periodic maintenance such a rubber hoses and filters.
10. Excessive labor due to components being concealed in vehicle as a result of installation.
11. Water, road debris, excessive dirt, salt, abrasive particles, or large foreign objects found in the generator.
12. Telephone or other communications expense.
13. Paint, hydraulic fluid, and interconnecting hoses (internal or external to system assemblies).



This warranty gives you specific legal rights, and you may also have other rights that may vary from state to state or province to province.

No person is authorized to give any other warranties or to assume any other liabilities behalf of Harrison Hydra-Gen®, unless made or assumed in writing by an officer of Harrison Hydra-Gen®.

Contact Harrison Hydra-Gen® for questions regarding your warranty rights and responsibilities at (281) 807-4420; or visit our website at [www.harrisonhydragen.com](http://www.harrisonhydragen.com).



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Custom Body

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| Coverage:  | Exterior surfaces of the body shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).  |
| Warranty Period Ends After:                                    | Ten (10) Years   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | <p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b><br/> 0-72 months 100%<br/> 73-96 months 50%<br/> 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b><br/> 0-36 months 100%<br/> 37-84 months 50%<br/> 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b><br/> 0-36 months 100%<br/> 37-48 months 50%<br/> 49-72 months 25%<br/> 73-120 months 10%</p> <p><b>Corrosion Perforation</b><br/> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include:<br/> (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).<br/> (b) UV paint fade.<br/> (c) Any cab not manufactured by Pierce.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship Graphics Fading and Deterioration

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Each graphic lamination shall be free from defects in material workmanship, fading, and deterioration.  |
| Warranty Begins:   | The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.  |
| Warranty Period Ends After:                                    | One (1) Year  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty does not cover damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

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#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





## **107' AERIAL INFORMATION**





# Proposal Details Report

7/8/2021

**Customer:** City Of Yuba City  
**Representative** Hansen, Brad  
**Requirements Manager:**  
**Description:** Yuba City BMP Aerial 105'  
**Chassis:** Velocity Chassis, Aerials, Tandem Axle, Ascendant, (Big Block), 2010  
**Body:** Aerial, HD Ladder 107' ASL Tandem, Alum Body

**Bid Number:** 742  
**Job Number:**  
**Organization:** Golden State Fire Apparatus, Inc

| OptionCode | Type | Option | ProposalText |
|------------|------|--------|--------------|
|------------|------|--------|--------------|

|         |  |                                |   |
|---------|--|--------------------------------|---|
| 0766640 |  | Boiler Plates, Aerial 107' ASL | Golden State Fire Apparatus Inc is pleased to submit a proposal to Yuba City Fire Department for a <b>Pierce® 107' Heavy Duty Aerial Ladder</b> per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications. |
|---------|--|--------------------------------|---|

Golden State Fire Apparatus Inc is pleased to submit a proposal to Yuba City Fire Department for a **Pierce® 107' Heavy Duty Aerial Ladder** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment. Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.

### GENERAL DESIGN AND CONSTRUCTION

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

### QUALITY AND WORKMANSHIP

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs and American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal. In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least twenty (20) fire departments/municipalities that have purchased vehicles for a second time is provided.

### DELIVERY

The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

### MANUAL AND SERVICE INFORMATION

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

### SAFETY VIDEO

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

### PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The

transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

#### **SERVICE AND WARRANTY SUPPORT**

Pierce dealership support will be provided by Golden State Emergency Services Inc by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within one hundred fifty (150) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

#### **LIABILITY**

**The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.**

#### **INSURANCE PROVIDED BY BIDDER**

##### **COMMERCIAL GENERAL LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Personal and Advertising Injury \$1,000,000**

**General Aggregate \$2,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.**

##### **COMMERCIAL AUTOMOBILE LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:**

**Each Accident Combined Single Limit: \$1,000,000**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:**

**Aggregate: \$3,000,000**

**Each Occurrence: \$3,000,000**

**The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.**

**The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.**

**Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.**

**All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.**

**Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.**

#### **INSURANCE PROVIDED BY MANUFACTURER**

##### **PRODUCT LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:**

**Each Occurrence: \$25,000,000**

**Aggregate: \$25,000,000**

**The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.**

**The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.**

**Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.**

**All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.**

**Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.**

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| 0018180 | Single Source Compliance, Aerials                               | <b>SINGLE SOURCE MANUFACTURER</b><br>Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pump house (including the sheet metal enclosure, valve controls, piping and operators panel) body and aerial device will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.  |
| 0584456 | Manufacture Location, Appleton, Wisconsin                       | Your apparatus will be manufactured in Appleton, Wisconsin.   |
| 0584452 | RFP Location: Appleton, Wisconsin                               |   |
| 0588609 | Vehicle Destination, US   |   |
| 0610784 | Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions | <b>NFPA 2016 STANDARDS</b><br>This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.<br>Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.<br>All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.<br>A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.<br>The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.<br>An official of the company will designate, in writing, who is qualified to witness and certify test results. |
| 0533351 | Quint Fire Apparatus  |   |
| 0588612 | Vehicle Certification, Aerial w/Pump                            |   |

**NFPA COMPLIANCY**

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

**VEHICLE INSPECTION PROGRAM CERTIFICATION**

To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

**INSPECTION CERTIFICATE**

A third party inspection certificate for the aerial device will be furnished upon delivery of the aerial device. The certificate will be Underwriters Laboratories Inc. Type 1 and will indicate that the aerial device has been inspected on the production line and after final assembly.

Visual structural inspections will be performed on all welds on both aluminum and steel ladders. On critical weld areas, or on any suspected defective area, the following tests will be conducted: Magnetic particle inspection will be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets will be placed on each side of the weld while iron powder is placed on the weld itself. The powder will detect any crack that may exist. This test will conform to ASTM E709 and be performed prior to assembly of the aerial device.

A liquid penetrant test will be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test will conform to ASTM E165 and be performed prior to assembly of the aerial device.

Ultrasonic inspection will be conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components.

In addition to the tests above, functional tests, load tests, and stability tests will be performed on all aerials. These tests will determine any unusual deflection, noise, vibration, or instability characteristics of the unit.

**PUMP TEST**

The pump will be tested, approved and certified by Underwriter's Laboratory at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details will be forwarded to the Fire Department.

**GENERATOR TEST**

If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

**BREATHING AIR TEST**

If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection*.

**AFTERMARKET SUPPORT WEBSITE**

Pierceparts.com will provide Pierce authorized dealer access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the Pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.

Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service. The website will consist of the following screens at the dealer level:

**My Fleet Screen**

The My Fleet screen will provide access to truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.

**Parts Screens**

The Parts screens will provide parts look-up capability of Pierce Manufacturing sourced items, with the aid of digital photographs, part drawings and assembly drawings. The parts search application will permit the searching of parts by item description or function group (major system category). The parts application will provide the ability to submit electronically a parts order, parts quote, or parts return request directly to Pierce Manufacturing for processing.

**Warranty Screen**

The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement.

**My Reports Screens**

The My Reports screens will provide access to multiple dealer reports to allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.

**Technical Support Screens**

The Technical Support screens will provide access to all currently published Operation and Maintenance and Service Publications. Access to Pierce Manufacturing Service Bulletins and Work Instructions, containing information on current service topics and recommendations will be provided.

**Training**

The Training screens will provide access to upcoming training classes offered by Pierce Manufacturing along with interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components will be provided. Access to training manuals used in Pierce Manufacturing training classes will be provided.

**About Pierce**

Access to customer service articles, corporate news, quarterly newsletters, and key contacts within the Customer Service Department will be provided. The current Customer Service Policy and Procedure Manual, detailing the operation of the Customer Service group will also be accessible.

0766110

Consortium, Sourcewell

0537375

Unit of Measure, US Gallons

0030006

Bid Bond Not Requested

**BID BOND NOT REQUESTED**

A bid bond will not be included. If requested, the following will apply:

All bidders will provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

0582800

Performance Bond, 100% with 25% Warranty Bond, 1 Yr, and Payment Bond

**PERFORMANCE BOND, 1 YEAR**

The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required. Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.

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| 0000007 | Approval Drawing   | <b>APPROVAL DRAWING</b><br>A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.<br>A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.  |
| 0002928 | Electrical Diagrams  | <b>ELECTRICAL WIRING DIAGRAMS</b><br>Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.   |
| 0786878 | Velocity Chassis, Aerials, Tandem Axle, Ascendant, (Big Block), 2010             | <b>VELOCITY CHASSIS</b><br>The Pierce Velocity® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required. The chassis will be the manufacturer's first line tilt cab.   |
| 0000110 | Wheelbase  | <b>WHEELBASE</b><br>The wheelbase of the vehicle will be 248.50.   |
| 0000070 | GVW Rating   | <b>GVW RATING</b><br>The gross vehicle weight rating will be 71,000.   |
| 0000203 | Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel/DCF                            | <b>FRAME</b><br>The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges. |
| 0756525 | Frame Liner, Internal "C" 12.50" x 3.00" x .25", XT/Vel/Imp,Enf Full Lgth, 56"Qv | <b>FRAME REINFORCEMENT</b><br>In addition, a full-length mainframe internal "C" liner will be provided. The liner will be an internal "C" design that steps to a smaller internal "C" design over the rear axle. It will be heat-treated steel measuring 12.50" x 3.00" x 0.25" through the front "C" portion of the liner, stepping to 9.38" x 3.00" x 0.25" through the rear "C" portion of the liner. Each liner will have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 857,462 in-lb. Total rbm at wheelbase center will be 4,391,869 in-lb.<br>The frame liner will be mounted inside of the chassis frame rail and extend the full length of the frame.                        |
| 0742713 | SP Axle, Front, Meritor MFS-20, 23,000#, w/assist, Velocity                      | <b>FRONT AXLE</b><br>The front axle will be a reverse "I" beam type with inclined king pins. It will be a Meritor™ axle, Model MFS-20, with a rated capacity of 23,000 lb.<br>The turning angle will be 45 degrees to the right and 45 degrees to the left.<br><b>STEERING CRAMP ANGLE CERTIFICATION</b><br>The fire apparatus manufacturer will provide, at time of bid, a letter from an independent third party testing agency stating they approve the steering cramp angle.<br>Highly specialized options may limit the cramp.  |
| 0640742 | Suspension, Front Spring, 23,000 lb, Taper Leaf, MFS Axle                        | <b>FRONT SUSPENSION</b><br>Front springs will be a heavy-duty, taper leaf design, 54.00" long by 4.00" wide, with a ground rating of 23,000 pounds.<br>Kaiser spring pins will be provided, with double "figure-eight" grease grooves and a layer of electroless nickel plating, 1.0 mil thick around the entire pin. The bushing that holds the spring pin in place will also have a grease groove.   |
| 0000319 | Shock Absorbers on Front Axle, Qtm/AXT/Imp/Vel                                   | <b>SHOCK ABSORBERS</b><br>To provide a smoother ride, the front axle will be furnished with Monroe® Gas-Magnum® 65 heavy-duty telescoping shock absorbers.   |
| 0000322 | Oil Seals, Front Axle  | <b>FRONT OIL SEALS</b><br>Oil seals with viewing window will be provided on the front axle.  |

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| 0899289 | Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply, Fire Service Load   | <b>FRONT TIRES</b><br>Front tires will be Goodyear 425/65R22.50 radials, 20 ply Armor MAX, rated for 24,400 lb maximum axle load and 68 mph maximum speed.  |
| 0019611 | Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot                       | The tires will be mounted on Alcoa 22.50" x 12.25" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.  |
| 0530478 | Axle, Rear, Meritor RT46-160, 48,000 lb, Imp/Vel/DCF                             | <b>REAR AXLE</b><br>The rear axle will be a Meritor™, Model RT-46-160, tandem axle assembly with a capacity of 48,000 lb.<br>An inter-axle differential, which divides torque evenly between axles, will be provided on the rear axle with an indicator light mounted on the cab instrument panel.  |
| 0561775 | SP Axle Ratio, Gear For 68 mph, Programmed For 60 mph                            | <b>AXLE RATIO OF VEHICLE</b><br>The rear axle will be geared for a top speed of 68 mph. The engine will be electronically limited to a top speed of 60 mph.   |
| 0555353 | Suspen, Rear, Hendrickson FMX 482 EX, Air Ride, 48,000 lb                        | <b>REAR SUSPENSION</b><br>Rear suspension will be a Hendrickson, Model FMX 482 EX, air ride with a ground rating of 48,000 lb. The suspension will have the following features:<br>Outboard vertical mounted heavy-duty shock absorbers<br>Utilizes track bars and torque rods to restrict lateral axle movement and maintain constant pinion angles<br>Super heavy-duty transverse beam to help reduce axle stress while increasing roll stability or resistance to lean<br>Low spring rate air springs for excellent ride quality<br>Dual height control valves to maintain level vehicle from side to side |
| 0000485 | Oil Seals, Rear Axle   | <b>REAR OIL SEALS</b><br>Oil seals will be provided on the rear axle(s).  |
| 0595200 | Driver Controlled Differential Lock, Tandem, Rear, Interlocked to Interaxle Lock | <b>DRIVER CONTROL DIFFERENTIAL LOCK (DCDL)</b><br>The rear axle of the rear tandem axles will be equipped with a driver controlled differential lock (DCDL). The control will be located within easy reach of the driver.<br>This will be set up with the interaxle lock. The differential lock will only engage after the interaxle lock is applied.   |
| 0627530 | Tires, Rear, Goodyear, G751 MSA, 12R22.50, LRH, Tandem                           | <b>REAR TIRES</b><br>Rear tires will be eight (8) Goodyear 12R22.50 radials, load range H, all position, G751 MSA tread, rated for 54,240 lb maximum axle load and 68 mph maximum speed.  |
| 0019639 | Wheels, Rear, Alcoa, 22.50" x 8.25", Aluminum, Hub Pilot, Tandem                 | The tires will be mounted on Alcoa© 22.50" x 8.25" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.   |
| 0568081 | Tire Balancing, Counteract Beads   | <b>TIRE BALANCE</b><br>All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.   |
| 0695315 | Tire Pressure Monitoring System, Not Required With Cats Eye Monitoring System    |   |
| 0057936 | Covers, Lug Nut, Chrome  | <b>CHROME LUG NUT COVERS</b><br>Chrome lug nut covers will be supplied on front and rear wheels.  |
| 0002045 | Mud Flap, Front and Rear, Pierce Logo  | <b>MUD FLAPS</b><br>Mud flaps with a Pierce logo will be installed behind the front and rear wheels.  |
| 0067813 | SP Tire, "Cat's Eye" Air Pressure Equalization (tandem)                          | <b>TIRE, AIR PRESSURE EQUALIZATION</b><br>A "Cat's Eye" air pressure equalization system will be provided on the rear dual wheels. This system will equalize the tire air pressure in the rear duals. Pressure will be monitored by observing the yellow indicator.   |

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| 0646362 | Chocks, Wheel, Worden HWGY- SB, Super Gripper                      | <b>WHEEL CHOCKS</b><br>There will be one (1) pair of Worden Safety Products, Model HWGY-SB, wheel chocks provided. Heavy Duty, large molded aluminum wheel chock with solid bottom, yellow powder coat finish.   |
| 0646364 | Mounting Brackets, Chocks, Worden Safety, Model U815T              | <b>WHEEL CHOCK BRACKETS</b><br>There shall be one (1) pair of Worden Safety model U815T mounting wheel chock brackets provided . The brackets shall be mounted TBD at Pre-Con visit.   |
| 0010673 | ABS Wabco Brake System, Tandem Rear Axle                           | <b>ANTI-LOCK BRAKE SYSTEM</b><br>The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels (rear tandem wheels). A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.  |
| 0508676 | Brakes, Meritor, EX225, 17", Disc Plus, Front                      | <b>BRAKES</b><br>The service brake system will be full air type by Meritor™. Front brakes will be Model EX225 Disc Plus, disc type with automatic pad wear adjustment and 17.00" ventilated rotors for improved stopping distance.   |
| 0000730 | Brakes, Meritor, Cam, Rear, 16.50 x 7.00"                          | The rear brakes will be Meritor™ 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields will be provided.  |
| 0058463 | Air Compressor, Brake, Bendix 15.8 CFM                             | <b>AIR COMPRESSOR, BRAKE SYSTEM</b><br>The air compressor will be a Bendix®, Model BA-921, with 15.80 cubic feet per minute output at 1,250 rpm.   |
| 0000789 | Brake Reservoirs, Five   | <b>BRAKE SYSTEM</b><br>The brake system will include:<br>Bendix dual brake treadle valve<br>Heated automatic moisture ejector on air dryer<br>Total air system capacity of 6,653 cubic inches<br>Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi<br>Spring set parking brake system<br>Parking brake operated by a push-pull style control valve<br>A parking "brake on" indicator light on instrument panel<br>Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, will be provided with an automatic spring brake application at 40 psi<br>A pressure protection valve will be provided to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa).<br>Quarter turn drain valves on each air tank<br>The air tank will be primed and painted to meet a minimum 750 hour salt spray test.<br>To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets. |
| 0568012 | Air Dryer, Wabco System Saver 1200, Heater, 2010                   | <b>BRAKE SYSTEM AIR DRYER</b><br>The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.   |
| 0000790 | Brake Lines, Nylon   | <b>BRAKE LINES</b><br>Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.   |
| 0000854 | Air Inlet, w/Disconnect Coupling                                   | <b>AIR INLET</b><br>One (1) air inlet with 3D series male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located forward in the driver side lower step well of cab. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female fitting will also be provided with the loose equipment.  |
| 0690889 | All Wheel Lockup (Aerial/Tanker Chassis), Aerial Master Activation | <b>ALL WHEEL LOCK-UP</b><br>An additional all wheel lock-up system will be installed which applies air to the front brakes only. The standard spring brake control valve system will be used for the rear.<br>The all wheel lock-up system will be activated automatically when the aerial master switch is activated.   |



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| 0610848 | Engine, DDC DD13, 525 hp, 1850 lb-ft, W/OBD, EPA 2016, Velocity           | <p><b>ENGINE</b><br/> The chassis will be powered by an electronically controlled engine as described below:<br/> Make:<br/> Detroit™<br/> Model:<br/> DD13®<br/> Power:<br/> 525 hp at 1625 rpm<br/> Torque:<br/> 1850 lb-ft at 1075 rpm<br/> Governed Speed:<br/> Full Load - 1900 rpm Road/2080 rpm Parked PTO<br/> Emissions Certification:<br/> EPA 2016 (GHG17)<br/> Fuel:<br/> Diesel<br/> Cylinders:<br/> Six (6)<br/> Displacement:<br/> 781 cubic inches (12.8L)<br/> Starter:<br/> Delco Remy 39MT™<br/> Fuel Filters:<br/> Dual cartridge style with check valve, water separator, and water in fuel sensor<br/> The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.</p> |
| 0018625 | SP High Idle w/Electronic Engine, Pre-set @1000 RPM, Custom               | <p><b>HIGH IDLE</b><br/> A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a 1000 engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.<br/> The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK To Engage High Idle".</p>  |
| 0590300 | Engine Brake, Jacobs Compression Brake, DD13                              | <p><b>ENGINE BRAKE</b><br/> A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.<br/> The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.<br/> The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.<br/> The ABS system will automatically disengage the auxiliary braking device when required.</p>   |
| 0684163 | Clutch, Fan, Air Actuated, Horton Drive Master, Constant On Sw, Indicator | <p><b>CLUTCH FAN</b><br/> A Horton clutch fan will be provided. Clutch fan will have an on/off switch with indicator light in the cab to engage the fan in a "constant on" mode.<br/> Switch will be located Cab Switch panel TBD at Pre-Construction on IP Layout.</p>   |
| 0037145 | Heater, 1000 watt Immersion, Connect to Shoreline                         | <p><b>ENGINE HEATER</b><br/> A 1000 watt, 120 volt, immersion type engine heater with thermostat will be installed. The engine heater will be wired to the shoreline and be active whenever the shoreline is connected.</p>   |
| 0123135 | Air Intake, w/Ember separator, Imp/Vel                                    | <p><b>ENGINE AIR INTAKE</b><br/> An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, rotomolded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.</p>   |
| 0565965 | Exhaust System, 5", 2010 DD13, ISX engine, Horizontal, Right Side         | <p><b>EXHAUST SYSTEM</b><br/> The exhaust system will include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the SCR device and will be 5.00" in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p>  |

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| 0683310 | Diffuser, Exhaust, Modified For Extraction, 5"x7"x5", Flush With Rub Rail, CARE | <p><b>EXHAUST MODIFICATION</b></p> <p>The exhaust pipe will be 90 degrees to the body. The diffuser will be reduced to 5.00" in the center to accommodate the fire department's air recovery system. The 5.00" extension pipe coming out of the end of the diffuser will be flush with the body rub rail. There will be a minimum of 4.00" clearance between the top of the 5.00" extension and the bottom of the body. There will be a minimum of 2.50" from the exhaust pipe to the under side of the body heat shield. The last 7.00" of the exhaust will be free of hangers and/or clamps.</p>  |
| 0787999 | Radiator, Impel/Velocity  | <p><b>RADIATOR</b></p> <p>The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards. For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy will be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions. There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators. The radiator assembly will include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap. A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system. A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.</p> |
| 0511425 | Cooling Hoses, Rubber   | <p><b>COOLANT LINES</b></p> <p>Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by the chassis manufacturer. Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.</p>  |
| 0606526 | SP Radiator Coolant, Detroit Diesel Power Cool Plus, Extended Life              | <p><b>RADIATOR COOLANT</b></p> <p>The radiator will be filled with Detroit Diesel® Power Cool Plus™, Extended Life, coolant.</p>  |
| 0001125 | Fuel Tank, 65 Gallon, Left Side Fill  | <p><b>FUEL TANK</b></p> <p>A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps. A 0.75" drain plug will be located in a low point of the tank for drainage. A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only." A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet. The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p>  |
| 0001129 | Lines, Fuel   | All fuel lines will be provided as recommended by the engine manufacturer.  |
| 0764563 | DEF Tank, 8.0 Gallon, LS Fill, Forward of Rear Axle                             | <p><b>DIESEL EXHAUST FLUID TANK</b></p> <p>An 8.0 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the left side body forward of the rear axle. A 0.50" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be provided and marked "Diesel Exhaust Fluid Only". The fill inlet will be located behind a, polished stainless steel door on the left side of the vehicle. The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing. The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</p>   |
| 0552793 | Not Required, Fuel Priming Pump   |   |
| 0552712 | Not Required, Shutoff Valve, Fuel Line  |   |

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| 0553019 | Cooler, Engine Fuel, Imp/Vel, AXT/Qtm/Sab/DCF/SFR/Enf                  | <b>FUEL COOLER</b><br>An air to fuel cooler will be installed in the engine fuel return line.  |
| 0690880 | No Selection Required From This Category                               |  |
| 0642533 | Trans, Allison 5th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/DCF/Enf     | <b>TRANSMISSION</b><br>An Allison 5th generation, Model EVS 4500P, electronic, torque converting, automatic transmission will be provided.<br>The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due.<br>Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).<br>A transmission temperature gauge with red light and buzzer will be installed on the cab instrument panel. |
| 0512762 | Transmission, Shifter, 6-Spd, Push Button, 4500, Imp/Vel/Qtm/DCF/Enf   | <b>TRANSMISSION SHIFTER</b><br>A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.<br>The transmission ratio will be: 1st - 4.70 to 1.00, 2nd - 2.21 to 1.00, 3rd - 1.53 to 1.00, 4th - 1.00 to 1.00, 5th - 0.76 to 1.00, 6th - 0.67 to 1.00, R - 5.55 to 1.00.  |
| 0684459 | Transmission Oil Cooler, Modine, External                              | <b>TRANSMISSION COOLER</b><br>A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.  |
| 0535530 | Mode, Downshift, Aggressive downshift to 2nd, w/engine brake, 6 speed  | <b>DOWNSHIFT MODE (w/engine brake)</b><br>The transmission will be provided with an aggressive downshift mode.<br>This will provide earlier transmission downshifts to 2nd gear from 6th gear, resulting in improved engine braking performance.   |
| 0565656 | Fluid, 4000/4500 Series Transmission, TranSynd synthetic, IPOS, Custom | <b>TRANSMISSION FLUID</b><br>The transmission will be provided with TranSynd heavy duty synthetic transmission fluid.  |
| 0001375 | Driveline, Spicer 1810   | <b>DRIVELINE</b><br>Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints. The shafts will be dynamically balanced before installation.<br>A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.   |
| 0669989 | Steering, Ross TAS-85 w/tilt, Eaton Pump, w/ Cooler                    | <b>STEERING</b><br>A Ross, Model TAS-85, steering gear, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braided lines with crimped fittings.<br>A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.   |
| 0001545 | Steering Assist Cylinder on Front Axle                                 | <b>STEERING ASSIST CYLINDER ON FRONT AXLE</b><br>To aid in the steering of the apparatus, the front axle will be equipped with a Ross power assist cylinder.   |
| 0509230 | Steering Wheel, 4 Spoke without Controls                               | <b>STEERING WHEEL</b><br>The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.   |
| 0690274 | Logo/Emblem, on Dash   | <b>LOGO AND CUSTOMER DESIGNATION ON DASH</b><br>The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.<br>The first row of text will be: Yuba<br>The second row of text will be: City<br>The third row of text will be: Fire   |

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| 0123625 | Bumper, 19" Extended, Imp/Vel  | <p><b>BUMPER</b><br/>A one (1) piece, ten (1) gauge, 304-2B type polished stainless steel bumper, a minimum of 10.00" high, will be attached to a bolted modular extension frame constructed of 50,000 psi tensile steel "C" channel mounted directly behind it to provide adequate support strength. The bumper will be extended 19.00" from front face of cab.</p> <p><b>Gravel Pan</b><br/>A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.</p>  |
| 0616492 | Tray, Hose, Center, 19" Bumper, Outside Air Horns, Imp/Vel               | <p><b>CENTER HOSE TRAY</b><br/>A hose tray, constructed of aluminum, will be placed in the center of the bumper extension. The tray will have a capacity of 150' of 1.75" double jacket cotton-polyester hose. Black rubber grating will be provided at the bottom of the tray. Drain holes are also provided.</p>   |
| 0624826 | Hose Restraint, Bumper Tray, 2.00" Straps, Fasteners, Pair               | <p><b>Center Hose Tray Restraint</b><br/>There will be one (1) pair of hose tray restraint straps located over the center mounted tray. The restraints will be 2.00" wide black nylon straps with seat belt buckle fasteners provided. The straps will be used to secure the hose in the tray.</p>   |
| 0510226 | Lift & Tow Package, Imp/Vel, AXT, Dash CF                                | <p><b>LIFT AND TOW MOUNTS</b><br/>Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems. The lift and tow mounts with eyes will be painted the same color as the frame.</p>   |
| 0522573 | Tow Hooks Not Required, Due to Lift and Tow Package                      | <p><b>TOW HOOKS</b><br/>No tow hooks are to be provided. This truck will be equipped with a lift and tow package with integral tow eyes.</p>   |
| 0586937 | Lights, Fog, PIAA 2110, 15213 Halogen Bulb (Rect) , Recessed Into Bumper | <p><b>FOG LIGHTS</b><br/>Two (2) PIAA Model 2110 rectangular halogen fog lamps, with clear lenses, will be provided one (1) on each side recessed into the front bumper. The fog lamp switch will include an internal indicator. This switch will be properly identified and installed on the switch panel with in reach of the driver. The parking, tail, side marker and license plate lamps will be activated by the headlamp switch prior to the activation of these fog lights. The fog lights will be able to switch on or off independently of the low beam headlights. The front fog lights will be reset to an off position whenever the headlight switch or the vehicle ignition switch is set to the off position. The fog lights will be deactivated when the high beam headlights are activated, when the headlight switch is turned off or when the ignition switch is turned off.</p> |

**CAB**

The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area will also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab will be a full-tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The raised roof section of the crew cab will have a 58.00" wide x 10.00" high square notch in the center section of the roof. This will allow the aerial device to be bedded in the same location as a non-raised roof.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor-to-ceiling height inside the forward cab will be no less than 60.25". The floor-to-ceiling height inside the crew cab will be no less than 52.95" in the center position and 68.75" in the outboard positions.

The crew cab will measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

**INTERIOR CAB INSULATION**

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

**FENDER LINERS**

Full-circular, aluminum inner fender liners in the wheel wells will be provided.

**PANORAMIC WINDSHIELD**

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

**WINDSHIELD WIPERS**

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather. The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

**FAST SERVICE ACCESS FRONT TILT HOOD**

A full-width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood with a double-action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).

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| 0724237 | Engine Tunnel, ISL and DD13, Mech Fasteners, Impel/Velocity FR | <p><b>ENGINE TUNNEL</b></p> <p>To provide structural strength, the engine tunnel sidewalls will be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and 0.38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.</p> <p>The back of the engine tunnel will be no higher than 16.25" off the crew cab floor.</p> <p>The engine hood will be insulated for protection from heat and sound. Perforated foil faced insulation will be over a 1.00" thick closed cell foam affixed with pressure sensitive adhesive and further secured with mechanical fasteners. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.</p>  |
| 0677478 | Rear Wall, Exterior, Cab, Aluminum Treadplate                  | <p><b>CAB REAR WALL EXTERIOR COVERING</b></p> <p>The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p>   |
| 0122466 | Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel                 | <p><b>CAB LIFT</b></p> <p>A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure. The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended).</p> <p>The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab.</p> <p>The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.</p> <p>For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.</p> <p><b>Cab Lift Interlock</b></p> <p>The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.</p> |
| 0123176 | Grille, Bright Finished, Front of Cab, Impel/Velocity          | <p><b>GRILLE</b></p> <p>A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.</p>  |
| 0752555 | Scuffplate, S/S, Striker Side, Cabinet Door(s), Each           | <p><b>DOOR FRAME SCUFFPLATE</b></p> <p>There will be two (2) polished stainless steel scuffplate(s) provided for the latch side of the door frame located at the left and right side cab exterior access compartments. Each scuffplate will be stainless steel with a .38" lip down.</p>  |
| 0002224 | Scuffplates, S/S At Cab Door Jambs, 4-Door Cab                 | <p><b>DOOR JAMB SCUFFPLATES</b></p> <p>All cab door jambs will be furnished with a polished stainless steel scuffplate, mounted on the striker side of the jamb.</p>  |
| 0527032 | Trim, S/S Band, Across Cab Face, Rect Lights, Velocity         | <p><b>FRONT CAB TRIM</b></p> <p>A band of 22 gauge polished stainless steel trim will be installed across the front of the cab, from door hinge to door hinge. The trim band will be centered on the head lights and applied with two (2)-sided tape. A 0.625" self adhesive trim strip will be applied around the perimeter of the trim band.</p> <p>There will be polished stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.</p>   |
| 0087357 | Molding, Chrome on Side of Cab                                 | <p><b>SIDE OF CAB MOLDING</b></p> <p>Chrome molding will be provided on both sides of cab.</p>  |
| 0521669 | Mirrors, Retrac, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex   | <p><b>MIRRORS</b></p> <p>A Retrac, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.</p>   |

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| 0667937 | Door, Full Height, Velocity FR 4-Door Cab, Raised Roof                     | <p><b>CAB DOORS</b></p> <p>To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 76.46" high. The crew cab doors will be located on the sides of the cab and will be constructed in the same manner as the forward cab doors. The crew cab doors will measure a minimum of 37.87" wide x 85.50" high.</p> <p>The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum. The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.</p> <p>A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.</p> <p>Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.</p> <p>The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.</p> <p>A heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.</p> <p>A chrome grab handle will be provided on the inside of each cab and crew cab door.</p> <p>A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.</p> <p>The cab steps at each cab door location will be located inside the cab doors to protect the steps from weather elements.</p> |
| 0655511 | Door Panel, Brushed Stainless Steel, Impel/Veloccity 4-Door Cab            | <p><b>Door Panels</b></p> <p>The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.</p>   |
| 0667905 | Storage Pockets w/ Elastic Cover, Recessed, Overhead, Impel/Veloccity FR   | <p><b>RECESSED POCKET WITH ELASTIC COVER</b></p> <p>To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 5.63" wide x 2.00" high x 4.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available mounting locations of the overhead console.</p>   |
| 0638775 | SP Controls, Electric Windows, All Cab Doors, Instr Pnl Switch, Imp/Vel FR | <p><b>ELECTRIC WINDOW CONTROLS</b></p> <p>Each cab entry door will be equipped with an electrically operated tempered glass window. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver and officer control panel will contain a control switch for each cab door's window. This control panel will be located within easy reach to the driver and officer located in the center instrument console. The crew cab door control panels will contain a single switch to operate the window within that door. The window switches will be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.</p>  |
| 0662776 | Electric Door Locks, Cab Doors, Conceal Switch Feature, Imp/Vel            | <p><b>ELECTRIC CAB DOOR LOCKS</b></p> <p>The front driver and passenger doors will have a door lock master switch (custom designed rotary lock knob) built into the interior door latch that will control all front and rear side exit door locks. Each rear cab door will have its own lock control. Each door will have a keyed exterior lock mechanism built into the door handle assembly.</p> <p>There will be one (1) concealed switch located TBD at Pre-Con.</p> <p>The lock system will include two (2) key FOBs that allow for keyless entry into the vehicle. The key FOB system will use code hopping technology for high security and be FCC part 15 compliant.</p>  |
| 0555485 | Steps, 4-Door Full Tilt Cab, Imp/Vel                                       | <p><b>CAB STEPS</b></p> <p>The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00" wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps.</p>   |
| 0770194 | Handrail, Exterior, Knurled, Alum, 4-Door Cab                              | <p><b>CAB EXTERIOR HANDRAILS</b></p> <p>A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.</p>   |

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| 0643790 | Steps, Stirrup, Formed w/Grip Strut, Crew Cab Doors             | <p><b>STIRRUP STEPS</b><br/> A stirrup step will be provided below each crew cab door. The steps will be designed with a grip strut tread material providing support, slip resistance, and drainage. The steps will be a bolt-on design and provide a 19.50" wide x 5.00" deep stepping surface. Each step will provide a step height of 9.25" from the top of the stirrup step to the first step of the cab.<br/> The stirrup step will be lit by an Amdor, Model AY-9500-012, 12 volt DC LED light provided on the step.<br/> The step light will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body step lights.</p>  |
| 0668574 | Steps, Stirrup, Formed w/Grip Strut, Cab Doors                  | <p><b>STIRRUP STEPS</b><br/> A stirrup step will be provided below each front cab door. The steps will be designed with a grip strut tread material providing support, slip resistance, and drainage. The steps will be a bolt-on design and provide a 19.50" wide x 5.00" deep stepping surface. Each step will provide a step height of 9.25" from the top of the stirrup step to the first step of the cab.<br/> The stirrup step will be lit by an Amdor, Model AY-LB-12HW-012, 12 volt DC LED light provided on the step.<br/> The step light will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body step lights.</p>  |
| 0509649 | Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step  | <p><b>STEP LIGHTS</b><br/> For reduced overall maintenance costs compared to incandescent lighting, there will be four (4) white LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.<br/> In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.<br/> The lights will be activated when the adjacent door is opened.</p>  |
| 0005772 | Fenders, S/S on cab, w/Radius corner, 2.00" wide                | <p><b>FENDER CROWNS</b><br/> Stainless steel fender crowns will be installed at the cab wheel openings. The fender crowns will have a radius outside corner that will allow the fender crown to extend out further than the standard width crown, thus extending beyond the sidewall of the front tires and allow the crew cab doors to open fully.</p>   |
| 0592071 | No Windows, Side of Crew Cab, Vel/Imp                           |   |
| 0568605 | Not Required, Interior Trim, No Cab Side Windows                |   |
| 0012090 | Not Required, Windows, Front/Side of raised roof                |   |
| 0509287 | Windows, Rear CC, (2) 11.25" x 18", Velocity                    | <p><b>WINDOWS, REAR</b><br/> The rear wall of the crew cab will have two (2) windows, each being 11.25" wide x 18.00" high.</p>   |
| 0553196 | Trim, Cab Rear Windows, Velocity                                | <p><b>WINDOW INTERIOR TRIM</b><br/> For improved aesthetics, the cab rear wall windows will include a vacuum formed ABS interior trim panel.</p>  |
| 0898668 | Compt, Transverse Crew Cab, Dbl Pan, D/A Int Dr, 70/90" Vel/Imp | <p><b>STORAGE COMPARTMENT</b><br/> Provided under the forward facing crew cab seats will be a transverse compartment. The compartment will be divided into upper and lower sections by the cab floor. The upper section will be 9.50" wide x 13.12" high x 24.25" deep (driver side) and 22.00" deep (passenger side). The top 7.38" of the upper compartment will be full width (transverse) of the crew cab. The lower section on both sides will be 9.50" wide x 16.50" high x 20.00" deep. The compartment will extend from the bottom of the cab to top of the seat riser.<br/> There will be two (2) reverse hinged double pan doors painted to match the cab exterior with a non-locking D-Ring latch, one (1) on each side of the cab with a cable for each exterior door provided as a door stop. The doors will be D/A finished on the interior.<br/> The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.<br/> There will be one (1) drop down door, panted to match the cab interior with two (2) non-locking lever latches with no louvers on the forward face of the seat riser.<br/> The compartment interior will be painted spatter gray.</p> <p><b>EXTERIOR ACCESS LIGHTING</b><br/> Exterior compartment access lighting will consist of four (4) white LED strip lights, one (1) horizontally mounted in each lower and upper exterior compartment.</p> |



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| 0750772 | SP | Trough for D-handle, Pike Pole Storage, Transverse Compartment       | <p><b>PIKE POLE STORAGE</b></p> <p>A rack will be provided for storage of one (1)D-handle pike pole(s). The rack will be located in the transverse section of the crew cab compartment, below the seat box. The pole will be stored on the ceiling of the transverse compartment.</p> <p>The size and brand of the pike poles stored will be customer furnished 6' CTF rubbish hook with D handle..</p>  |
| 0671301 |    | Tubes, (2) Pike Pole, (1) Each Side, Storage, Transverse Compartment | <p><b>PIKE POLE STORAGE</b></p> <p>There will be two (2) tubes provided for storage of pike poles. The tubes will be located in the transverse section of the crew cab compartment, below the seat box. The poles will be stored so that one (1) pole can be accessed out each side of the vehicle.</p> <p>The size and brand of the pike poles stored will be 6' NY Roof Hook RH6 Customer to furnish.</p>  |
| 0123686 |    | Drip Rail, Cab Roof, Impel/Velocity/Velociry SLT                     | <p><b>CAB ROOF DRIP RAIL</b></p> <p>For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.</p>   |
| 0199285 |    | Visor, Exterior, Vel/Imp   | <p><b>EXTERIOR VISOR</b></p> <p>The exterior sun visor will be a painted composite to match the job color. The five (5) forward facing marker lights will be mounted to the visor.</p>   |
| 0664381 |    | Bracket, PAC, Ironslok, PN K5003                                     | <p><b>HALLIGAN TOOL/AXE MOUNTING BRACKET(S)</b></p> <p>There will be one (1) PAC Ironslok, P/N 5003, mounting bracket(s) provided. They will be located TBD at Final.</p>  |
| 0622531 |    | Mounting Provisions, 3/16" Alum, Full Engine Tunnel, Color, Vel/Imp  | <p><b>MOUNTING PLATE ON ENGINE TUNNEL</b></p> <p>Equipment installation provisions will be installed on the engine tunnel.</p> <p>A .188" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will be located to the left of the officer and on the rear of the tunnel. It will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel 1.00" to allow for wire routing below the plate.</p> <p>The mounting surface will be gray, vinyl texture paint.</p>  |
| 0632381 | SP | Bracket, PAC, Pickhead Axe Hanger/Pocket and Handlelok Kit, PN 5012  | <p><b>TOOL MOUNT(S)</b></p> <p>There will be one (1) PAC Pickhead axe hanger/pocket kit(s), P/N K5012, provided which includes a Handlelok, P/N 1004, tool mounting bracket. The bracket(s) will be located TBD at Final.</p>  |
| 0632382 | SP | Bracket, PAC, Halligan Tool Mount and Toolok Kit, PN K5032           | <p><b>TOOL MOUNT(S)</b></p> <p>There will be one (1) PAC Halligan Tool Mount kit, P/N K5032, provided which includes a Toolok, P/N 1003, tool mounting bracket. The bracket(s) will be located TBD at Final.</p>   |
| 0748671 |    | Cab Interior, Vinyl, Velocity FR, CARE                               | <p><b>CAB INTERIOR</b></p> <p>With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road.</p> <p>The center console will be a high impact ABS polymer and will be easily removable.</p> <p>The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface.</p> <p>To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided.</p> <p>To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.</p> <p>To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew.</p> <p>The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery.</p> <p>The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place.</p> <p><b>CAB INTERIOR UPHOLSTERY</b></p> <p>The cab interior upholstery will be 36 oz dark silver gray vinyl. All cab interior materials will meet FMVSS 302 (flammability of interior materials).</p> |

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| 0667943 | Cab Interior, Paint Color, Impel/Velocify FR          | <p><b>CAB INTERIOR PAINT</b><br/> The following metal surfaces will be painted black, vinyl textured paint:<br/> Modesty panel in front of driver<br/> Vertical surface of dash in front of the officer (not applicable for recessed dash)<br/> Glove box in front of the officer (if applicable)<br/> Power distribution in front of the officer<br/> Rear heater vent panels<br/> The remaining cab interior metal surfaces will be painted fire smoke gray, vinyl texture paint.</p>  |
| 0509532 | Floor, Rubber Padded Cab & Crew Cab, Imp/Vel, Dash CF | <p><b>CAB FLOOR</b><br/> The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.<br/> The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.</p>  |
| 0741239 | HVAC, Impel/Velocify FR, CARE                         | <p><b>DEFROST/AIR CONDITIONING SYSTEM</b><br/> A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.</p> <p><b>Cab Defroster</b><br/> A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defroster will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:<br/> One (1) adjustable will be directed towards the left side cab window<br/> One (1) adjustable will be directed towards the right side cab window<br/> Six (6) fixed outlets will be directed at the windshield<br/> The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.</p> <p><b>Cab/Crew Auxiliary Heater</b><br/> There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.</p> <p><b>Air Conditioning</b><br/> A 19.10 cubic inch compressor will be installed on the engine.<br/> A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted #10 white.<br/> The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.<br/> The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.<br/> The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.<br/> Adjustable air outlets will be strategically located on the forward plenum cover per the following:<br/> Four (4) will be directed towards the seating position on the left side of the cab<br/> Four (4) will be directed towards the seating position on the right side of the cab<br/> Adjustable air outlets will be strategically located on the evaporator cover per the following:<br/> Five (5) will be directed towards crew cab area<br/> A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.<br/> The air conditioner refrigerant will be R-134A and will be installed by a certified technician.</p> <p><b>Climate Control</b><br/> An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.<br/> The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.<br/> The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.</p> <p><b>Gravity Drain Tubes</b><br/> Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.</p> |
| 0627910 | Sun Visor, Vinyl/Fabric, Imp/Vel                      | <p><b>SUN VISORS</b><br/> There will be two (2) vinyl covered sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.<br/> There will be a polished stainless steel bracket provided to help secure each sun visor in the stowed position.</p>  |

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| 0548173 | Grab Handles, Driver and Passenger Door Post, Imp/Vel | <p><b>GRAB HANDLE</b><br/>A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.</p>   |
| 0002526 | Light, Engine Compt, All Custom Chassis               | <p><b>ENGINE COMPARTMENT LIGHT</b><br/>An engine compartment light will be installed under the engine hood, of which the switch is an integral part. Light will have a .125" diameter hole in its lens to prevent moisture retention.</p>  |
| 0122516 | Fluid Check Access, Imp/Vel                           | <p><b>ACCESS TO ENGINE DIPSTICKS</b><br/>For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be 20.00" wide x 8.25" high and be flush with the wall of the engine tunnel. The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil. The door will have a rubber seal for thermal and acoustic insulation. One (1) flush latch will be provided on the access door.</p> |
| 0625348 | SP Map Box, 2 Bin, 30 Degree Slant                    | <p><b>MAP BOX</b><br/>one (1) map boxes with two (2) bins, open at top will be provided. The map box will be located Per Customer, TBD at Final. The map box will be divided into two (2) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin will slant 30 degrees from horizontal. The map box will be constructed of .125" aluminum and will be painted to match the cab interior.</p>  |
| 0660939 | Map Box, 2 Bin, 30 Degree Slant                       | <p><b>MAP BOX</b><br/>There will be a map box with two (2) bins, open at top, provided. The map box will be located ship loose. The map box will be divided into two (2) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin will slant 30 degrees from horizontal. The map box will be constructed of .125" aluminum and will be painted to match the cab interior.</p>   |
| 0661827 | Strap, Side Release Fastener, Map Box                 | <p><b>STRAP(S) FOR MAP BOX</b><br/>There will be two (2) strap(s) with 1.00" side release type fasteners provided for the ship loose, (1) for each map box map box.</p>  |

**CAB SAFETY SYSTEM**

The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:

A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.

A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.

A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.

A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.

A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.

Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.

Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.

Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

**FRONTAL IMPACT PROTECTION**

The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.

The SRS system will deploy the following components in the event of a frontal or oblique impact event:

Driver side front air bag

Passenger side knee bolster air bag

Air curtains mounted in the outboard bolster of outboard seat backs

Suspension seats will be retracted to the lowest travel position

Seat belts will be pre-tensioned to firmly hold the occupant in place

**SIDE ROLL PROTECTION**

The SRS system will provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system will deploy the following components in the event of a side roll:

Air curtains mounted in the outboard bolster of outboard seat backs

Suspension seats will be retracted to the lowest travel position

Seat belts will be pre-tensioned to firmly hold the occupant in place

0622619

Seating Capacity, 4 Seats

**SEATING CAPACITY**

The seating capacity in the cab will be four (4).

0697005

Seat, Driver, Pierce PS6, Premium, Air Ride, High Back, Safety

**DRIVER SEAT**

A Pierce PS6® seat will be provided in the cab for the driver. The seat design will be a cam action type with air suspension. For increased convenience, the seat will include electric controls to adjust the rake (15 degrees), height (1.75" travel) and horizontal (7.00" travel) position. Electric controls will be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 20 degrees back to 45 degrees forward. Providing for maximum comfort, the seat back will be a high back style with manual lumbar adjustment lever, for lower back support, and will include minimum 7.50" deep side bolster pads for maximum support. The lumbar adjustment lever will be easily located at the lower outboard position of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control).

The seat will include the following features incorporated into the side roll protection system:

Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.

A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

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| 0696994 | Seat, Officer, Pierce PS6, Premium, Air Ride, SCBA, Safety                       | <p><b>OFFICER SEAT</b><br/> A Pierce PS6® seat will be provided in the cab for the passenger. The seat will be a cam action type with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not belted. The seat back will be an SCBA back style with 7.5 degree fixed recline angle, and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. A suspension seat safety system will be included. When activated, this system will pretension the seat belt and then retract the seat to its lowest travel position. The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p> |
| 0002517 | Not Required, Radio Compartment  |   |
| 0771846 | Cabinet, Rear Facing, LS, 24 W x 28 H x 30.5 D, Lap, Ext Acc, Imp/Vel            | <p><b>REAR FACING LEFT SIDE CABINET</b><br/> A rear facing cabinet will be provided in the crew cab at the left side outboard position with interior and exterior access. The cabinet will be 24.00" wide x 28.00" high x 30.50" deep with one (1) lap door hinged on the inboard side, painted to match the cab interior with a non-locking D-ring latch. The clear door opening will be 19.00" wide x 25.50" high. The cabinet will include no adjustable shelves or trays in the cabinet interior. The cabinet will include no louvers. The cabinet will also provide exterior access with one (1) reverse hinged double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper will be provided as a door stop. The clear door opening will 19.75" wide x 25.75" high. The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame. The cabinet will be constructed of smooth aluminum and painted to match the cab interior.</p> <p><b>Cabinet Light</b><br/> There will be one (1) Amdor H2O LED strip light installed on the left side of the exterior cabinet door opening. The lights will be controlled by an automatic door switch.</p>   |
| 0102783 | Not Required, Seat, Rr Facing C/C, Center  |   |
| 0767537 | Cabinet, Rear Facing, RS, 21.5 W x 28 H x 26.5 D, Lap, Ext Acc, Imp/Vel          | <p><b>REAR FACING RIGHT SIDE CABINET</b><br/> A rear facing cabinet will be provided in the crew cab at the right side outboard position. The cabinet will be 21.50" wide x 28.00" high x 26.50" deep with one (1) lap door hinged on the inboard side, painted to match the cab interior with a non-locking D-ring latch. The clear door opening will be 16.50" wide x 25.50" high. The cabinet will include no adjustable shelves or trays in the cabinet interior. The cabinet will include no louvers. The cabinet will also provide access from outside the cab with one (1) reverse hinged double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper will be provided as a door stop. The exterior clear door opening will be 16.00" wide x 25.75" high. The door will be located on the side of the cab over the wheelwell. The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame. The cabinet will be constructed of smooth aluminum and painted to match the cab interior.</p> <p><b>Cabinet Light</b><br/> There will be one (1) Amdor H2O LED strip light installed on the right side of the exterior cabinet door opening. The lights will be controlled by an automatic door switch.</p>  |
| 0646213 | Seat, Forward Facing C/C, DS Outboard, Pierce PS6, SCBA, Foldup, 17" Btm, Safety | <p><b>FORWARD FACING DRIVER SIDE OUTBOARD SEAT</b><br/> There will be one (1) forward facing, Pierce PS6® foldup seat provided at the driver side outboard position in the crew cab. To provide improved ride comfort, and maximize accessibility to the crew cab, the seat will be provided with 17.00" deep foam cushions and the seat back will be provided with 0 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll. The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p>   |

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| 0783723 | Cabinet, Forward Facing, Center, 42 W x 45 H x 14 D, Roll, Imp/Vel                     | <p><b>FORWARD FACING CENTER CABINET</b></p> <p>A forward facing cabinet will be provided in the crew cab at the center position. The cabinet will be 42.00" wide x 45.00" high x 14.00" deep with one (1) Amdor rollup door with anodized finish, non-locking. The cabinet will be provided with no false floor. The frame to frame opening of the cabinet will be 39.50" wide x 39.75" high. The minimum clear door opening will be 36.75" wide x 33.87" high.</p> <p>The cabinet will include two (2) infinitely adjustable shelves with a 1.25" up-turned lipped to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will be constructed of smooth aluminum and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the right side of the interior cabinet door opening and one (1) white LED strip light installed on the left side of the interior cabinet door opening. The lighting will be controlled by an automatic door switch.</p>  |
| 0642535 | Seat, Forward Facing C/C, PS Outboard, Pierce PS6, SCBA, Foldup, 17" Btm, Safety       | <p><b>FORWARD FACING PASSENGER SIDE OUTBOARD SEAT</b></p> <p>There will be one (1) forward facing, Pierce PS6® foldup seat provided at the passenger side outboard position in the crew cab. To provide improved ride comfort, and maximize accessibility to the crew cab, the seat will be provided with 17.00" deep foam cushions and the seat back will be provided with 0 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat back will be an SCBA back style. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.</p> <p>A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.</p> <p>The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p> |
| 0721702 | SP Cabinet, Rear Facing, Top Eng Tnl, 40 W x 14.5 H x 24 D, Web, Sp Dr Flg, Imp/Vel FR | <p><b>REAR FACING CENTER CABINET</b></p> <p>A rear facing cabinet will be provided on the top rear of the engine tunnel. The cabinet will be 40.00" wide x 14.50" high x 24.00" deep. The rear of the cabinet will follow the engine tunnel angle. The interior door will be web netting. The netting will be made with 1.00" wide nylon material with 2.00" openings. The nylon webbing will be permanently fastened at the bottom of the cabinet and have 1.00" cam buckle fasteners on the opposite side to secure it. The clear door opening of the cabinet will be 39.50" wide x 12.00" high. A flange will be provided along the top edge of the cabinet only.</p> <p>The cabinet will include no adjustable shelves or trays painted to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will be constructed of smooth aluminum, and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the right side of the interior cabinet door opening and one (1) white LED strip light installed on the left side of the interior cabinet door opening. The lighting will be controlled by a rocker switch on the front of the cabinet.</p>  |
| 0651182 | Scuffplate, Cabinet, Interior Door Pan, Cab  | <p><b>DOOR PAN SCUFFPLATE</b></p> <p>There will be a polished stainless steel scuffplate on the interior door pan of two (2) cabinet door (s) located each EMS compartment door.</p>   |
| 0617407 | Matting, Turtle Tile, EMS Compt, 0.75" Thick   | <p><b>MATTING IN EMS COMPARTMENT</b></p> <p>Turtle Tile vinyl grating will be provided in two (2) EMS compartments, install in DS &amp; PS rear facing cabinets. Notch the matting around the large bolt heads so that the matting sits flush.. Tile color will be black.</p>  |
| 0721705 | SP Compt, (2) Rear Fcng, Overhead, 12.50 W x 10 H x 20 D, Imp/Vel FR Notch             | <p><b>REAR FACING OVERHEAD STORAGE CABINETS</b></p> <p>There will be two (2) overhead rear facing storage cabinets installed at the raised roof within the crew cab, on each side of the aerial notch. The cabinets will be approximately 12.50" wide x 10.00" high x 20.00" deep at the bottom.</p> <p>Each cabinet will include one (1) drop down door. Non-locking latch will be provided. The door opening will be increased by installing the smallest return flange possible.</p> <p>The cabinet will be constructed of smooth aluminum and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be no lighting installed in the cabinets.</p>   |
| 0766467 | Upholstery, Seats In Cab, All Vinyl, Seats Inc, CARE                                   | <p><b>SEAT UPHOLSTERY</b></p> <p>All seat upholstery will be leather grain 36 oz gray vinyl resistant to oil, grease and mildew. The cab will have four (4) seating positions.</p>   |

|         |   |   |
|---------|---|---|
| 0543991 | Bracket, Air Bottle, Hands-Free II, Cab Seats                                 | <p><b>AIR BOTTLE HOLDERS</b><br/>All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G. There will be a quantity of three (3) SCBA brackets.</p>   |
| 0603867 | Seat Belt, ReadyReach   | <p><b>SEAT BELTS</b><br/>All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.<br/>The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.<br/>Any flip up seats will include a 3-point shoulder type belts only.</p>   |
| 0604867 | Seat Belt Height Adjustment, 4 Seats, Imp/Vel, Dash CF                        | <p><b>SHOULDER HARNESS HEIGHT ADJUSTMENT</b><br/>All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter.<br/>A total of four (4) seating positions will have the adjustable shoulder harness.</p>   |
| 0602464 | Helmet Storage, Provided by Fire Department, NFPA 2016                        | <p><b>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</b><br/>NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided. There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.</p>   |
| 0647638 | Lights, Dome, Weldon Dual LED 4 Lts   | <p><b>CAB DOME LIGHTS</b><br/>There will be four (4) Weldon 808* series, dual LED dome lights with grey bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab.<br/>The color of the LED's will be red and white .<br/>The white LED's will be controlled by the door switches and the lens switch.<br/>The color LED's will be controlled by the lens switch.</p>  |
| 0631779 | Light, Map, Overhead, Round Halogen, AXT/Imp/Vel/Dash CF, Hawk EX             | <p><b>OVERHEAD MAP LIGHTS</b><br/>There will be two (2) white halogen, round adjustable map lights installed in the cab:<br/>One (1) overhead in front of the driving position.<br/>One (1) overhead in front of the passenger's position.<br/>Each light will include a switch on the light housing.<br/>The light switches will be connected directly to the battery switched power.</p>  |
| 0555812 | Handlts, (2) Streamlight, Fire Vulcan, 44451 C4 LED, Tail lights, 12v, Orange | <p><b>HAND HELD LIGHT</b><br/>There will be two (2) 12v Streamlight, Fire Vulcan, Model #44451, lights mounted TBD at Pre-Con.<br/>Each light housing will be orange in color and be provided with a C4 LED and two (2) "ultra bright blue tail light LEDs" The tail light LEDs will have a dual mode of blinking or steady.<br/>Vehicle mount with 12VDC direct wire charging rack.<br/>Quick release buckle strap will be included.</p>   |
| 0554191 | Handlight, Streamlight, Fire Vulcan, 44451, C4 LED, Tail Lights, 12v, Orange  | <p><b>ADDITIONAL HAND HELD LIGHT</b><br/>There will be one (1) light additional 12v Streamlight, Model #44451, Fire Vulcan LED light(s) will be provided and mounted Officer seat TBD at Pre-Con. Each light will be provided with a 12 volt direct wire vehicle mounting rack.<br/>Each light housing will be orange in color and be provided with a single C4 LED bulb and two (2) "ultra bright blue tail-light LEDs". The tail-light LEDs will have a dual mode of blinking or steady.</p>  |
| 0568369 | Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010, Dash CF    | <p><b>CAB INSTRUMENTATION</b><br/>The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.</p> <p><b>Gauges</b><br/>The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:<br/> <b>Voltmeter gauge (Volts)</b><br/> <b>Low volts (11.8 VDC)</b><br/> <b>Amber indicator on gauge assembly with alarm</b><br/> <b>High volts (15 VDC)</b><br/> <b>Amber indicator on gauge assembly with alarm</b></p> |

Very low volts (11.3 VDC)  
 Amber indicator on gauge assembly with alarm  
 Very high volts (16 VDC)  
 Amber indicator on gauge assembly with alarm  
 Tachometer (RPM)  
 Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)  
 Fuel level gauge (Empty - Full in fractions)  
 Low fuel (1/8 full)  
 Amber indicator on gauge assembly with alarm  
 Very low fuel (1/32) fuel  
 Amber indicator on gauge assembly with alarm  
 Engine oil pressure gauge (PSI)  
 Low oil pressure to activate engine warning lights and alarms  
 Red indicator on gauge assembly with alarm  
 Front air pressure gauge (PSI)  
 Low air pressure to activate warning lights and alarm  
 Red indicator on gauge assembly with alarm  
 Rear air pressure gauge (PSI)  
 Low air pressure to activate warning lights and alarm  
 Red indicator on gauge assembly with alarm  
 Transmission oil temperature gauge (Fahrenheit)  
 High transmission oil temperature activates warning lights and alarm  
 Amber indicator on gauge assembly with alarm  
 Engine coolant temperature gauge (Fahrenheit)  
 High engine temperature activates an engine warning light and alarm  
 Red indicator on gauge assembly with alarm  
 Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)  
 Low fluid (1/8 full)  
 Amber indicator on gauge assembly with alarm  
 All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.

**Indicator Lamps**

To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps will be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

**Alarms**

Audible steady tone warning alarm: A steady audible tone alarm will be provided whenever a warning message is present.

Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

Alarm silence: Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for 3 to 5 seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

**Indicator Lamp and Alarm Prove-Out**

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

**Control Switches**

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

Headlight / Parking light switch: A three (3)-position maintained rocker switch will be



provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

**Panel backlighting intensity control switch:** A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

**High idle engagement switch:** A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

**"Ok To Engage High Idle" indicator lamp:** A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

**Ignition switch:** A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for 3 to 5 seconds. A green indicator lamp will be activated with vehicle ignition.

**Engine start switch:** A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

**4-way hazard switch:** A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

**Heater, defroster, and air conditioning control panel.**

**Turn signal arm:** A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

**Parking brake control:** An air actuated push/pull park brake control valve will be provided.

**Chassis horn control:** Activation of the chassis horn control will be provided through the center of the steering wheel.

#### **Custom Switch Panels**

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

#### **Diagnostic Panel**

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

Engine diagnostic port

Transmission diagnostic port

ABS diagnostic port

SRS diagnostic port (where applicable)

Command Zone USB diagnostic port

ABS diagnostic switch (blink codes flashed on ABS telltale indicator)

Diesel particulate filter regeneration switch (where applicable)

Diesel particulate filter regeneration inhibit switch (where applicable)

#### **Cab LCD Display**

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel.

The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function.

The upper left section will display the outside ambient temperature.

The upper right section will display, along with other configuration specific information:

Odometer

Trip mileage

PTO hours

Fuel consumption

Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm.

The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

0509511

Air Restriction Indicator, Imp/Vel,  
AXT, Dash CF, Enf MUX

#### **AIR RESTRICTION INDICATOR**

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm will be provided.

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|---------|--|---|
| 0543751 | Light, Do Not Move Apparatus                                       | <p><b>"DO NOT MOVE APPARATUS" INDICATOR</b></p> <p>A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."</p> <p>The same circuit that activates the Do Not Move Apparatus indicator will activate a steady tone alarm when the parking brake is released.</p>  |
| 0509042 | Messages, Open Dr/DNMT, Color Dsply,                               | <p><b>DO NOT MOVE TRUCK MESSAGES</b></p> <p>Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged). The following messages will be displayed (where applicable):</p> <ul style="list-style-type: none"> <li>Do Not Move Truck</li> <li>DS Cab Door Open (Driver Side Cab Door Open)</li> <li>PS Cab Door Open (Passenger's Side Cab Door Open)</li> <li>DS Crew Cab Door Open (Driver Side Crew Cab Door Open)</li> <li>PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)</li> <li>DS Body Door Open (Driver Side Body Door Open)</li> <li>PS Body Door Open (Passenger's Side Body Door Open)</li> <li>Rear Body Door Open</li> <li>DS Ladder Rack Down (Driver Side Ladder Rack Down)</li> <li>PS Ladder Rack Down (Passenger Side Ladder Rack Down)</li> <li>Deck Gun Not Stowed</li> <li>Lt Tower Not Stowed (Light Tower Not Stowed)</li> <li>Fold Tank Not Stowed (Fold-A-Tank Not Stowed)</li> <li>Aerial Not Stowed (Aerial Device Not Stowed)</li> <li>Stabilizer Not Stowed</li> <li>Steps Not Stowed</li> <li>Handrail Not Stowed</li> </ul> <p>Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged.</p> |
| 0551600 | Switching, Cab, Rocker MUX, Impel/Velocity, AXT MUX, Dash CF       | <p><b>SWITCH PANELS</b></p> <p>The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain up to six (6) rocker-type switches each rated for two hundred thousand (200,000) cycles. Panels with less than six (6) switches will include indicators or blanks. The switch panel(s) will be located in the "overhead" position above the windshield on the driver side overhead to allow for easy access. The switches will be rocker-type and include an integral indicator light. For quick, visual indication the switch will be illuminated whenever the switch is active. A 2-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed below the switches. The label will allow light to pass through the letters for improved visibility in low light conditions. Switches and light source are integral to the switch panel assembly.</p>   |
| 0555915 | Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocity      | <p><b>WIPER CONTROL</b></p> <p>For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.</p>  |
| 0731813 | Hour Meter, Aerial, Included in Information Centers, ASL, AAT, ASP | <p><b>HOURLMETER - AERIAL DEVICE</b></p> <p>The following aerial hour meter messages will be included in the information centers: Aerial Hours, that keeps track of the time the aerial device is in motion. Aerial PTO Hours, that keeps track of the time the aerial master switch is on and the aerial PTO is engaged.</p>   |
| 0002615 | Switch, Aerial 12V Master  | <p><b>AERIAL MASTER</b></p> <p>There will be a master switch for the aerial operating electrical system provided.</p>   |
| 0002617 | PTO switch, w/light - aerial                                       | <p><b>AERIAL PTO SWITCH</b></p> <p>A PTO switch for the aerial with indicator light will be provided.</p>   |
| 0548004 | Wiring, Spare, 15 A 12V DC 1st                                     | <p><b>SPARE CIRCUIT</b></p> <p>There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:</p> <ul style="list-style-type: none"> <li>The positive wire will be connected directly to the battery power</li> <li>The negative wire will be connected to ground</li> <li>Wires will be protected to 15 amps at 12 volts DC</li> <li>Power and ground will terminate to the left of the officer behind the VDR plug (#101) and forward of switch assembly #9</li> <li>Termination will be with 15 amp, power point plug with rubber cover</li> <li>Wires will be sized to 125 percent of the protection</li> <li>The circuit(s) may be load managed when the parking brake is set.</li> </ul>   |

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| 0548007 | Wiring, Spare, 15 A 12V DC 3rd   | <p><b>SPARE CIRCUIT</b></p> <p>There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 15 amps at 12 volts DC.<br/> Power and ground will terminate two in switch panel location #9 - Per IP layout.<br/> Termination will be with 15 amp, power point plug with rubber cover.<br/> Wires will be sized to 125 percent of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p>  |
| 0548009 | Wiring, Spare, 20 A 12V DC 1st   | <p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power<br/> The negative wire will be connected to ground<br/> Wires will be protected to 20 amps at 12 volts DC<br/> Power and ground will terminate rear facing overhead compartment on the PS with 4' of wire coiled up and marked<br/> Termination will be with heat shrinkable butt splicing<br/> Wires will be sized to 125% of the protection<br/> This circuit(s) may be load managed when the parking brake is set.</p>  |
| 0548013 | Wiring, Spare, 20 A 12V DC 2nd   | <p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery switched power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 20 amps at 12 volts DC.<br/> Power and ground will terminate the rear facing overhead compartment on the DS with 4' of wire coiled up and marked "BATTERY SWITCHED".<br/> Termination will be with heat shrinkable butt splicing.<br/> Wires will be sized to 125% of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p>  |
| 0641696 | Wiring, Spare, 20 A 12V DC, 12<br>Circuit Fuse Block, Blue Sea 5026<br>2nd | <p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 20 amps at 12 volts DC.<br/> Power and ground will terminate one (1) mounted up high centered in Forward Facing CC cabinet..<br/> Termination will be to a Blue Sea System, Model 5026, 12 circuit with negative bus bar, straight blade fuse block. The terminal block will include a cover with circuit labels.<br/> Wires will be sized to 125% of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p>   |
| 0657222 | Wiring, Spare, 20 A 12V DC, 12<br>Circuit Fuse Block, Blue Sea 5026<br>1st | <p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:<br/> The positive wire will be connected directly to the battery power.<br/> The negative wire will be connected to ground.<br/> Wires will be protected to 20 amps at 12 volts DC.<br/> Power and ground will terminate one (1) mounted on the backside of the DS rear facing EMS compartment down low inboard toward the engine tunnel best possible location. Be sure to label the fuse box "BATTERY SWITCHED".<br/> Termination will be to a Blue Sea System, Model 5026, 12 circuit with negative bus bar, straight blade fuse block. The terminal block will include a cover with circuit labels.<br/> Wires will be sized to 125% of the protection.<br/> This circuit(s) may be load managed when the parking brake is set.</p> |
| 0566101 | Recess, Dash Panel, Officer Side,<br>Vel/Imp                               | <p><b>DASH PANEL RECESS</b></p> <p>The dash panel across from the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be 7.25" down x 7.81" back and 20.88" wide.</p>   |
| 0044166 | Swivel Mount, Heavy Duty, Fill in<br>Blank Feature                         | <p><b>SWIVEL MOUNT</b></p> <p>There will be one (1) Johnny Ray, Model JR-300 heavy duty swivel mount bracket(s), rated for a maximum of seven (7) lbs, provided for the fire department's Radio equipment. The swivel mount bracket(s) will be located centered overhead between - new HVAC will determine location. AT Pre-Con.</p>   |
| 0615386 | Vehicle Information Center, 7" Color<br>Display, Touchscreen, MUX          | <p><b>INFORMATION CENTER</b></p> <p>An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.<br/> The information center will have the following specifications:</p>   |

Operate in temperatures from -40 to 185 degrees Fahrenheit  
An Optical Gel will be placed between the LCD and protective lens  
Five weather resistant user interface switches  
Grey with black accents  
Sunlight Readable  
Linux operating system  
Minimum of 1000nits rated display  
Display can be changed to an available foreign language  
A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.  
Programmed to read US Customary

#### **General Screen Design**

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur:  
An amber background/text color will indicate a caution condition  
A red background/text color will indicate a warning condition  
The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.  
A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

#### **Home/Transit Screen**

This screen will display the following:

Vehicle Mitigation (if equipped)  
Water Level (if the water level system includes compatible communications to the information center)  
Foam Level (if the foam level system includes compatible communications to the information center)  
Seat Belt Monitoring Screen  
Seat Belt Monitoring Screen  
Tire Pressure Monitoring (if equipped)  
Digital Speedometer  
Active Alarms

#### **On Scene Screen**

This screen will display the following and will be auto activated with pump engaged (if equipped):

Battery Voltage  
Fuel  
Oil Pressure  
Coolant Temperature  
RPM  
Water Level (if equipped)  
Foam Level (if equipped)  
Foam Concentration (if equipped)  
Water Flow Rate (if equipped)  
Water Used (if equipped)  
Active Alarms

#### **Virtual Buttons**

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

#### **Page Screen**

The page screen will display the following and allow the user to progress into other screens for further functionality:

Diagnostics  
Faults  
Listed by order of occurrence  
Allows to sort by system  
Interlock  
Throttle Interlocks  
Pump Interlocks (if equipped)  
Aerial Interlocks (if equipped)  
PTO Interlocks (if equipped)  
Load Manager  
A list of items to be load managed will be provided. The list will provide a description of the load. The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.  
The screen will indicate if a load has been shed (disabled) or not shed.  
"At a glance" color features are utilized on this screen.  
Systems  
Command Zone  
Module type and ID number  
Module Version  
Input or output number  
Circuit number connected to that input or output  
Status of the input or output  
Power and Constant Current module diagnostic information  
Foam (if equipped)  
Pressure Controller (if equipped)  
Generator Frequency (if equipped)  
Live Data  
General Truck Data  
Maintenance  
Engine oil and filter  
Transmission oil and filter  
Pump oil (if equipped)

Foam (if equipped)  
 Aerial (if equipped)  
 Setup  
 Clock Setup  
 Date & Time  
 12 or 24 hour format  
 Set time and date  
 Backlight  
 Daytime  
 Night time  
 Sensitivity  
 Unit Selection  
 Home Screen  
 Virtual Button Setup  
 On Scene Screen Setup  
 Configure Video Mode  
 Set Video Contrast  
 Set Video Color  
 Set Video Tint  
 Do Not Move  
 The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated  
 Driver Side Cab Door  
 Passenger's Side Cab Door  
 Driver Side Crew Cab Door  
 Passenger's Side Crew Cab Door  
 Driver Side Body Doors  
 Passenger's Side Body Doors  
 Rear Body Door(s)  
 Ladder Rack (if applicable)  
 Deck Gun (if applicable)  
 Light Tower (if applicable)  
 Hatch Door (if applicable)  
 Stabilizers (if applicable)  
 Steps (if applicable)  
 Notifications  
 View Active Alarms  
 Shows a list of all active alarms including date and time of the occurrence is shown with each alarm  
 Silence Alarms - All alarms are silenced  
 Timer Screen  
 HVAC (if equipped)  
 Tire Information (if equipped)  
 Ascendant Set Up Confirmation (if equipped)  
 Button functions and button labels may change with each screen.

|         |  |  |
|---------|--|--|
| 0734857 | Collision Mitigation, HAAS Alert (R2V), HA5                                | <p><b>COLLISION MITIGATION</b></p> <p>There will be a HAAS Alert®, Model HA5 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA5 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degree C to 85 degree C.</p> <p>The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.</p> <p>While responding with emergency lights on, the HA5 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.</p> <p>While on scene with emergency lights on, the HA5 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.</p> <p>The HA5 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5 year cellular plan subscription.</p> <p>Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.</p> |
| 0606231 | Not Required, Vehicle Data Recorder and Seat Belt Monitor, 1906/Export/ULC |  |
| 0699100 | Install Customer Provided Key Storage, Knox Box, in Cab                    | <p><b>KNOX-BOX®</b></p> <p>There will be one (1) Knox-Box(s) sent to the apparatus manufacturers preferred installer and installed at RUN WIRES ONLY to the area in front of the officer, towards the left (see marked up instrument panel drawing for general location). Mounting location will be determined at time of construction review inspection. Specific shipping requirements will be followed.</p> <p>A "technician's key" will be provided by the customer for each Knox Box. The box cannot be installed without a compatible technician's key.</p>  |

|         |  |   |
|---------|--|---|
| 0616382 | Install Customer Provided GPS/Multimode Antenna(s)                               | <p><b>GPS / MULTIMODE ANTENNA INSTALLATION</b></p> <p>There will be one (1) customer supplied GPS / Multimode antenna(s) with stud mount for thick roof material to be installed on the roof. The antenna coax cable(s) will be run per the packing list / instructions provided to the third party installer.</p> <p>Specific shipping requirements will be followed. The GPS / Multimode antenna will be sent to the apparatus manufacturers preferred installer prior to cab fabrication.</p>  |
| 0696439 | Antenna Mount, Custom Chassis, Cable Routed to Instrument Panel Area             | <p><b>RADIO ANTENNA MOUNT</b></p> <p>There will be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap will be installed on the mount.</p>   |
| 0660489 | Antenna Mount, Custom Chassis, Fill in Blank Mounting and Cable Locations        | <p><b>RADIO ANTENNA MOUNT</b></p> <p>There will be two (2) standard 1.125", 18 thread, NMO type antenna mounting base(s) installed antenna to be in the most appropriate location on DS cab roof. on the cab roof with high efficiency, low loss, coaxial cable(s) routed within the cab / crew area to Routed the rear facing overhead compartment on the DS . A weatherproof cap will be installed on the mount.</p>  |
| 0755515 | Camera, Pierce, Drivers Mux Display, R, RS Cameras                               | <p><b>VEHICLE CAMERA SYSTEM</b></p> <p>There will be a color vehicle camera system provided with the following:</p> <ul style="list-style-type: none"> <li>One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse</li> <li>One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal</li> </ul> <p>The camera images will be displayed on the driver's vehicle information center display. Audio from the microphone on the rear camera will be emitted by an amplified speaker with volume control in the blank panel to the right of the steering column.</p> <p>The following components will be included:</p> <ul style="list-style-type: none"> <li>One (1) SV-CW134639CAI Camera</li> <li>One (1) CS134404CI Side camera</li> <li>One (1) Amplified speaker (if applicable)</li> </ul> <p>All necessary cables</p>   |
| 0511071 | Guard, 4-Way, Rear Vision Camera   | <p><b>VEHICLE CAMERA GUARD</b></p> <p>There will be one (1) aluminum treadplate guard(s) fastened over the vehicle camera(s) located Top of Aluminum Treadplate above Traffic Advisor .</p>   |
| 0615100 | Pierce Command Zone, Advanced Electronics & Control System, Diag LEDs, Vel, WiFi | <p><b>ELECTRICAL POWER CONTROL SYSTEM</b></p> <p>The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.</p> <p>Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.</p> <p>Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.</p> <p><b>Solid-State Control System</b></p> <p>A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.</p> <p>The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.</p> <p>For increased reliability and simplified use the control system modules will include the following attributes:</p> <ul style="list-style-type: none"> <li>Green LED indicator light for module power</li> <li>Red LED indicator light for network communication stability status</li> <li>Control system self test at activation and continually throughout vehicle operation</li> <li>No moving parts due to transistor logic</li> <li>Software logic control for NFPA mandated safety interlocks and indicators</li> <li>Integrated electrical system load management without additional components</li> <li>Integrated electrical load sequencing system without additional components</li> <li>Customized control software to the vehicle's configuration</li> <li>Factory and field re programmable to accommodate changes to the vehicle's operating parameters</li> <li>Complete operating and troubleshooting manuals</li> <li>USB connection to the main control module for advanced troubleshooting</li> </ul> <p>To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:</p> <ul style="list-style-type: none"> <li>Module circuit board will meet SAE J771 specifications</li> </ul> |

Operating temperature from -40C to +70C

Storage temperature from -40C to +70C

Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 16 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

#### **Circuit Protection and Control Diagram**

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

#### **On-Board Advanced/Visual Electrical System Diagnostics**

The on-board information center will include the following diagnostic information:

Text description of active warning or caution alarms

Simplified warning indicators

Amber caution indication with intermittent alarm

Red warning indication with steady tone alarm

All control system modules, with the exception of the main control module, will contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs will be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output will be provided and will illuminate whenever the respective input or output is active. Color-coded labels within the modules will encompass the LEDs for ease of identification. The LED indicator lights will provide point of use information for reduced troubleshooting time without the need for an additional computer.

#### **Tech Module with WiFi**

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz.

The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The data logging capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.

A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.

#### **Prognostics**

A software based vehicle tool will be provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone, color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics will include:

Engine oil and filter

Transmission oil and filter

Pump oil (if equipped)

Foam oil (if equipped)

Aerial oil and filter (if equipped)

#### **Advanced Diagnostics**

An advanced, Windows-based, diagnostic software program will be provided for this control system. The software will provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software will be easy to understand and use and have the ability to view system input/output (I/O) information.

#### **Indicator Light and Alarm Prove-Out System**

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

#### **Voltage Monitor System**

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

#### **Dedicated Radio Equipment Connection Points**

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

The studs will consist of the following:

12-volt 40-amp battery switched power

12-volt 60-amp ignition switched power

12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

#### **Enhanced Software**

The solid-state control system will include the following software enhancements:

All perimeter lights and scene lights (where applicable) will be deactivated when the parking brake is released.

Cab and crew cab dome lights will remain on for 10 seconds for improved visibility after the doors close. The dome lights will dim after 10 seconds or immediately if the vehicle is put into gear.

Cab and crew cab perimeter lights will remain on for 10 seconds for improved visibility after the doors close. The dome lights will dim after 10 seconds or immediately if the vehicle is put into gear.

#### **EMI/RFI Protection**

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio

frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

0730603

Electrical System, Velocity ESP

#### **ELECTRICAL**

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal.

Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.

Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.

Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.

Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).

All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

0079211

Batteries, (6) Exide Grp 31, 950 CCA each, Threaded Stud

#### **BATTERY SYSTEM**

There will be six (6) 12 volt Exide®, Model 31S950X3W, batteries that include the following features will be provided:

950 CCA, cold cranking amps

190 amp reserve capacity

High cycle

Group 31

Rating of 5700 CCA at 0 degrees Fahrenheit

1140 minutes of reserve capacity

Threaded stainless steel studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

0531325

Charger, Sngl Sys, Kussmaul, 35/10, 091-35/10

#### **BATTERY CHARGER**

A Kussmaul Autocharge 35/10, Model 091-35-10, single battery charger will be provided. A bar graph display indicating the state of charge will be provided.

The battery saver circuit will be capable of supplying up to 10 amps for external loads such as hand light or auxiliary radio batteries.

The battery charger will be wired to the 120-volt shoreline to activate automatically when power is connected.

0688318

Location, Charger, Cab Behind Driver Seat, On the EMS Compt Vertical Wall

Battery charger will be located in the cab behind the driver seat, on the vertical wall of the EMS compartment.



|         |   |  |
|---------|---|--|
| 0008621 | Battery System, Single Start, All Custom Chassis                      | <p><b>BATTERY SYSTEM</b><br/>There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p> <p><b>MASTER BATTERY SWITCH</b><br/>There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.<br/>An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.</p>   |
| 0016857 | Shoreline, 20A 120V, Kussmaul Auto Eject, 091-55-20-120, Super        | <p><b>AUTO EJECT FOR SHORELINE</b><br/>There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.<br/>The shoreline inlet(s) will include yellow weatherproof flip up cover(s).<br/>There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.<br/>The shoreline(s) will be connected to the battery charger.<br/>There will be a mating connector body supplied with the loose equipment.<br/>There will be a label installed near the inlet(s) that state the following:<br/>Line Voltage<br/>Current Rating (amps)<br/>Phase<br/>Frequency</p>  |
| 0026800 | Shoreline Location  | The shoreline receptacle will be located on the driver side of cab, to the front of cab door.  |
| 0123174 | Battery Compartment, Imp/Vel  | <p><b>BATTERY COMPARTMENTS</b><br/>The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.</p> <p><b>JUMPER STUDS</b><br/>One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.</p> |
| 0696190 | Location, Bat Chrg Ind, DS Cab Corner                                 | The battery charger indicator will be located on the driver's side front cab corner.   |
| 0121711 | Alternator, 320 amp, Leece-Neville 4962PA, Sgl Sys                    | <p><b>ALTERNATOR</b><br/>A Leece-Neville, Model 4962PA, alternator will be provided. It will have a rated output current of 320 amps, as measured by SAE method J56. The alternator will feature an integral, self diagnostic regulator and rectifier. The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p>  |
| 0642647 | SP Fan, Electrical Component Cooling 12 V, Switched Battery, Ignition | <p><b>FAN, ELECTRICAL COOLING</b><br/>There will be two (2) 12 volt DC electrical cooling fan to exhaust the heat buildup in the 2-way radio storage cubicle located in the rear facing overhead compartment on the PS and DS in the best location as determined by the radio installer to promote air movement.<br/>The fan will be activated when the battery switch is on and the ignition switch is on.</p>  |

**ELECTRONIC LOAD MANAGER**

An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components will not be allowed.

The system will include the following features:

System voltage monitoring.

A shed load will remain inactive for a minimum of five minutes to prevent the load from cycling on and off.

Sixteen available electronic load shedding levels.

Priority levels can be set for individual outputs.

High Idle to activate before any electric loads are shed and deactivate with the service brake.

If enabled:

"Load Man Hi-Idle On" will display on the information center.

Hi-Idle will not activate until 30 seconds after engine start up.

Individual switch "on" indicator to flash when the particular load has been shed.

The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

Load managed items list, with priority levels and item condition.

Individual load managed item condition:

ON = not shed

SHED = shed

**SEQUENCER**

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components will not be allowed.

Emergency light sequencing will operate in conjunction with the emergency master light switch.

When the emergency master switch is activated, the emergency lights will be activated one by one at half-second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.

Sequencing of the following items will also occur, in conjunction with the ignition switch, at half-second intervals:

Cab Heater and Air Conditioning

Crew Cab Heater (if applicable)

Crew Cab Air Conditioning (if applicable)

Exhaust Fans (if applicable)

Third Evaporator (if applicable)

0783153

Headlights, Rect LED, JW Spkr Evo 2, AXT/DCF/Enf/Imp/Sab/Vel

**HEADLIGHTS**

There will be four (4) JW Speaker®, Model 8800, 4" x 6" rectangular LED lights mounted in the front quad style, chrome housing on each side of the cab grille:

the outside light on each side will contain a part number 055\*\*\*1 low beam module

the inside light on each side will contain a part number 055\*\*\*1 high beam module

the headlights to include chrome bezels

The low beam lights will be activated when the headlight switch is on.

The high beam and low beam lights will be activated when the headlight switch and the high beam switch is activated.

0648425

Light, Directional, Wln 600 Cmb, Cab Crn, Imp/Vel/AXT/Qtm/DCF

**DIRECTIONAL LIGHTS**

There will be two (2) Whelen 600® series, LED combination directional/marker lights provided.

The lights will be located on the outside cab corners, next to the headlights.

The color of the lenses will be the same color as the LED's.

0620044

Light, Directional/Marker, Intermediate, Truck-Lite 21290Y LED 2lts

**INTERMEDIATE LIGHT**

There will be two (2) Truck-Lite®, Model 21290Y, amber LED lights furnished, one (1) each side of the rear fender panel. The light will double as a turn signal and marker light.

0648074

Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts

**CAB CLEARANCE/MARKER/ID LIGHTS**

There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.

Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.

Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.

|         |   |   |
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| 0511569 | Lights, Clearance/Marker/ID, Rear, P25 LED 7Lts                             | <p><b>REAR CLEARANCE/MARKER/ID LIGHTING</b></p> <p>There will be three (3) LED identification lights located at the rear installed per the following:<br/> As close as practical to the vertical centerline<br/> Centers spaced not less than 6.00" or more than 12.00" apart<br/> Red in color<br/> All at the same height</p> <p>There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:<br/> To indicate the overall width of the vehicle<br/> One (1) each side of the vertical centerline<br/> As near the top as practical<br/> Red in color<br/> To be visible from the rear<br/> All at the same height</p> <p>There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:<br/> To indicate the overall length of the vehicle<br/> One (1) each side of the vertical centerline<br/> As near the top as practical<br/> Red in color<br/> To be visible from the side<br/> All at the same height</p> <p>The lights will be mounted with no guard.<br/> There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.<br/> There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.<br/> Per FMVSS 108 and CMVSS 108 requirements.</p> |
| 0602938 | Light, Marker End Outline, Rubber Arm, LED Marker Lamp, Rear Body           | <p><b>MARKER LIGHTS</b></p> <p>There will be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens will face the front and the red lens will face the rear of the truck.<br/> These lights will be activated with the running lights of the vehicle.</p>   |
| 0564683 | Lights, Tail, WIn M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir Arw For Hsg | <p><b>REAR FMVSS LIGHTING</b></p> <p>The rear stop/tail and directional LED lighting will consist of the following:<br/> Two (2) Whelen®, Model M6BTT, red LED stop/tail lights<br/> Two (2) Whelen, Model M6T, amber LED arrow turn lights<br/> The lights will be provided with color lenses.<br/> The lights will be mounted in a polished combination housing.</p>  |
| 0561471 | Lights, Backup, WIn M6BUW, LED, For Tail Lt Housing                         | <p>There will be two (2) Whelen Model M6BUW, LED backup lights provided in the tail light housing.</p>  |
| 0664481 | Bracket, License Plate & Light, P25 LED                                     | <p><b>LICENSE PLATE BRACKET</b></p> <p>There will be one (1) license plate bracket mounted on the rear of the body.<br/> A white LED light will illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.</p>  |
| 0556842 | Bezels, WIn, (2) M6 Chrome Pierce, For mtg (4) WIn M6 lights                | <p><b>LIGHTING BEZEL</b></p> <p>There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.</p>   |
| 0589905 | Alarm, Back-up Warning, PRECO 1040  | <p><b>BACK-UP ALARM</b></p> <p>A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</p>  |
| 0065911 | Switch, Back-Up Alarm Override  | <p><b>SWITCH, BACK-UP ALARM OVERRIDE</b></p> <p>There will be a momentary switch provided in the cab for the back-up alarm. The switch will be within reach of the driver. The switch will cancel the back-up alarm when the switch is pushed and automatically reset when the apparatus is shifted out of reverse.</p>   |
| 0578264 | Flash Pattern, California Title13, LED Warning Lights                       | <p><b>WARNING LIGHT FLASH PATTERN</b></p> <p>The flash pattern of all the exterior warning lights will be set to meet the certified California, Title XIII flash pattern by either the light manufacturer's default flash pattern or by a conversion change to the certified flash pattern.</p>   |

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| 0769420 | Lights, Perimeter Cab, Amdor AY-LB-12HW020 LED 4Dr                     | <p><b>CAB PERIMETER SCENE LIGHTS</b></p> <p>There will be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one (1) for each cab door.</p> <p>These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.</p>   |
| 0769564 | Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 1lt              | <p><b>PUMP HOUSE PERIMETER LIGHTS</b></p> <p>There will be one (1) Amdor, Model AY-LB-12HW020, 350 lumens, 20.00" LED weatherproof strip light with bracket provided under the passenger's side pump panel running board.</p> <p>If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the Amdor light will be installed.</p> <p>The light will be activated when the battery switch is on, and controlled by the same means as the body perimeter lights.</p>   |
| 0768765 | Lights, Perimeter Body, Amdor AY-LB-12HW020 LED 2lts, Turntable Access | <p><b>BODY PERIMETER SCENE LIGHTS</b></p> <p>There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens, 20.00" long, with white LED's, 12 volt lights provided.</p> <p>The lights will be mounted in the following locations:</p> <p>One (1) light under the driver's side turntable access steps</p> <p>One (1) light under the passenger's side turntable access steps</p> <p>The perimeter scene lights will be activated when the battery switch is on and a switch within reach of the driver is activated and the parking brake is applied.</p>  |
| 0598966 | Lights, Side Scene, FRC SPA900-Q70 Surface Mt, 2nd                     | <p><b>SCENE LIGHTS</b></p> <p>There will be one (1) Fire Research, Model SPA900-Q70 scene light(s) with chrome flange(s) installed on the side of the apparatus, on the passenger's side of the cab centered above the exterior access EMS door as high as possible.</p> <p>A control for the light(s) selected above will be the following:</p> <ul style="list-style-type: none"> <li>a switch at the driver's side switch panel</li> <li>a switch at the passenger's side switch panel</li> <li>a switch at the pump operator's panel</li> <li>no additional switch location</li> </ul> <p>These lights may be load managed when the parking brake is set.</p> |
| 0598967 | Lights, Side Scene, FRC SPA900-Q70 Surface Mt, 1st                     | <p><b>SCENE LIGHTS</b></p> <p>There will be one (1) Fire Research, Model SPA900-Q70 scene light(s) with chrome flange(s) installed on the side of the apparatus, on the driver's side of the cab centered above the exterior access EMS door as high as possible.</p> <p>A control for the light(s) selected above will be the following:</p> <ul style="list-style-type: none"> <li>a switch at the driver's side switch panel</li> <li>a switch at the passenger's side switch panel</li> <li>a switch at the pump operator's panel</li> <li>no additional switch location</li> </ul> <p>These lights may be load managed when the parking brake is set.</p>    |
| 0618310 | Light, Visor, FRC, 12V SPA851-Q20-*, LED 1st                           | <p><b>12 VOLT LIGHTING</b></p> <p>There will be one (1) Fire Research, Model SPA851-Q20-*, 12 volt LED floodlight(s) provided on the front visor, centered.</p> <p>The housing(s) painted parts of this light assembly to be white with a white bezel.</p> <p>The light(s) will be controlled in the following way:</p> <ul style="list-style-type: none"> <li>a switch at the driver's side switch panel</li> <li>a switch at the pump operator's panel</li> <li>a switch at the passenger's side switch panel</li> <li>no additional switch location</li> </ul> <p>These lights may be load managed when the parking brake is applied.</p>                      |
| 0672327 | Lights, Deck, Wln (2) MPBW Micro Pioneer LED Rear Flood Lights         | <p><b>DECK LIGHTS</b></p> <p>There shall be two (2) Whelen®, Model MPBW, white 12 volt DC LED floodlights with stud bail mount provided at the rear of the hose bed, one (1) each side.</p> <p>The lights will be activated by a control from a switch in a stainless steel recess and a switch on the left side switch panel.</p>  |
| 0721287 | Lights, Hose Bed, Sides, Dual Strips, 40", 45 Ends ASL ASP             | <p><b>HOSE BED LIGHTS</b></p> <p>There will be two (2), 40.00" long 12 volt DC light strips with white LEDs, provided to illuminate the hose bed per the following.</p> <ul style="list-style-type: none"> <li>One (1) light installed on the left side of the hose bed.</li> <li>One (1) light installed on the right side of the hose bed.</li> </ul> <p>There will be a 16 gauge bright stainless steel overhead cover with 45 degreed ends provided over the light to protect the light from the hose and the hose from damaging snags.</p> <p>The lights will be activated when the aerial device parking brake is applied.</p>                              |
| 0645681 | Lights, Not Required, Rear Work, Deck Lights At Rear                   |   |

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| 0763248 | Lights, Walk Surf, Amdor AY-LB-12HW0**, LED, Cargo Areas           | <p><b>WALKING SURFACE LIGHTS</b></p> <p>There will be One (1) Amdor®, Model AY-LB-12HW0**, white 12 volt DC LED strip light(s) provided in the cargo area(s) to illuminate the interior surface of the cargo area(s). Light(s) will be Cargo flange match 31902.</p> <p>The light will be activated when the body step lights are on.</p>  |
| 0793399 | Aerial, HD Ladder 107' ASL Tandem, Alum Body                       |  |
| 0554269 | Body Skirt Height, 18"   |  |
| 0601006 | Tank, Water, 500 Gallon, Poly, Ascendant Tandem Axle, PAL, Notched | <p><b>WATER TANK</b></p> <p>It will have a capacity of 500 gallons and will be constructed of polypropylene plastic in a rectangular shape.</p> <p>The joints and seams will be nitrogen welded inside and out.</p> <p>The tank will be baffled in accordance with NFPA Bulletin 1901 requirements.</p> <p>The baffles will have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments.</p> <p>The longitudinal partitions will be constructed of .38" polypropylene plastic and extend from the bottom of the tank through the top cover to allow positive welding.</p> <p>The transverse partitions extend from 4" off the bottom to the underside of the top cover.</p> <p>All partitions interlock and will be welded to the tank bottom and sides.</p> <p>The tank top will be constructed of .50" polypropylene.</p> <p>It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions.</p> <p>It will be supported to keep it rigid during fast filling conditions.</p> <p>Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions.</p> <p>Two of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.</p> <p>A sump will be provided at the bottom of the water tank. The sump will include a drain plug and the tank outlet.</p> <p>Tank will be installed in a fabricated "cradle" assembly constructed of structural steel.</p> <p>Sufficient crossmembers are provided to properly support bottom of tank.</p> <p>Crossmembers are constructed of steel bar channel or rectangular tubing.</p> <p>Tank "floats" in cradle to avoid torsional stress caused by chassis frame flexing.</p> <p>Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.</p> <p>Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle.</p> <p>Tank mounting system is approved by the manufacturer.</p> |
| 0003405 | Overflow, 4.00" Water Tank, Poly                                   | <p>Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.</p> <p>Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.</p> <p>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.</p>  |
| 0028104 | Foam Cell Required   |  |
| 0003429 | Not Required, Direct Tank Fill                                     |  |
| 0751577 | Hose Bed, Aluminum, Trough Style, 2G Aerial                        | <p><b>HOSE BED</b></p> <p>The hose bed will be fabricated of 0.125" thick 5052-H32 aluminum with a tensile strength of 31,000.</p> <p>The sides of the hose bed will not form any portion of the fender compartments.</p> <p>The hose bed will be located ahead of the ladder turntable between the tank and side body compartments.</p> <p>Hose removal will be at the rear of the body via "chutes" under the turntable on the right side.</p> <p>Each chute will be enclosed with a full height smooth aluminum door. There will be a lift and turn latch and a pneumatic cylinder at the top of the door (if applicable).</p> <p>The hose bed flooring will consist of removable aluminum grating with a top surface that is corrugated to aid in hose aeration.</p> <p>The grating slats will be 0.50" wide x 4.50" long with spacing between the slats for hose ventilation.</p>   |
| 0003491 | Hose Bed Capacity 1000' of 5.00", Ascendant, PAP, PAL              | Hose capacity will be a minimum of 1000' of 5.00" large diameter hose.   |
| 0591017 | Hose Restraint, Hose Bed, Aerial, Front Velcro Strap, Top          | <p><b>AERIAL HOSE BED HOSE RESTRAINT</b></p> <p>The hose in the hose bed will be restrained by one (1) black nylon Velcro® strap at the top of the hose bed. The strap will be installed to the top of the hose bed side sheets.</p>   |

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| 0003512 | Running Boards, Ascendant, PAL   | <p><b>RUNNING BOARDS</b></p> <p>The running boards will be fabricated of 0.125" bright aluminum treadplate and supported by structural steel angle assemblies bolted to the chassis frame rails.</p> <p>Running boards will be 13.00" deep and are spaced away from the body 0.50".</p> <p>A splash guard will be provided to keep road dirt or water from splashing up onto the pump panels.</p> <p>The running boards will have a riser on the body to protect the painted surface from damage by stepping on the running boards.</p> <p>The entire surface of the running boards will be covered with bright aluminum treadplate.</p>   |
| 0735733 | Turntable Steps-Morton Cass, Swing Down,LS/RS,Ascend TA,PAL,PAP,Handhld Cut Outs | <p><b>TURNTABLE STEPS</b></p> <p>Steps to access the turntable from the left and right side will be provided just behind the compartmentation. There shall be no bottom flip step provided. The bottom step will have a step height not exceeding 24.00" from the ground to the top surface of the step at any time. All steps will have a height no greater than 14.00" from top surface to top surface.</p> <p>The steps will be a swing-down design, with the stepping area made of Morton Tread-Grip® channel.</p> <p>The stepwell will be lined with bright aluminum treadplate to act as scuffplates.</p> <p>The steps will be connected to the "Do Not Move Truck" indicator.</p> <p>A knurled aluminum handrail will be provided on each side of the access steps.</p> <p>A hand hold will be provided in the left and right side of each set of access steps.</p>   |
| 0554004 | Lights, Step (6), P25 LED, Swing Down Access Steps, Each Side                    | <p><b>STEP LIGHTS</b></p> <p>There will be three (3) white LED step lights provided for each set of aerial turntable access steps.</p> <p>In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>The step lights will be actuated by the aerial master switch in the cab.</p>  |
| 0690023 | Wall, Rear, Smooth Aluminum  | <p><b>SMOOTH ALUMINUM REAR WALL</b></p> <p>The rear wall will be smooth aluminum.</p>  |
| 0029503 | Tow Eyes (2), Painted, Aerial  | <p><b>TOW EYES</b></p> <p>Two (2) rear painted tow eyes will be located at the rear of the apparatus and will be mounted directly to the torque box. The inner and outer edges of the tow eyes will be radiused.</p>   |
| 0013641 | Construction, Compt, Alum, Ascendant Tandem, PAL                                 | <p><b>COMPARTMENTATION</b></p> <p>Compartmentation will be fabricated of 0.125" 5052 aluminum. The side compartments are an integral assembly with the rear fenders. Fully enclosed rear wheel housings will be provided to prevent rust pockets and for ease of maintenance. Due to the severe loading requirements of this aerial, a method of compartment body support suitable for the intended load will be provided. The backbone of the support system will be the chassis frame rail, which is the strongest component of the chassis and is designed for sustaining maximum loads.</p> <p>A support system will be used which will incorporate a floating substructure by using Neoprene Elastomer isolators to allow the body to remain rigid while the chassis goes through its natural flex. The isolators will have a broad range of proven viability in vehicular applications, be of a fail safe design, and allow for all necessary movement in three (3) transitional and rotational modes. This will result in a 500 lb equipment rating for each lower compartment of the body.</p> <p>The compartmentation in front of the rear axle will include a 3.00" steel support assemblies which are bolted to the chassis frame rails. A steel framework will be mounted to the body above these support assemblies connected to the support assemblies with isolators. There will be one (1) support assembly mounted to each chassis frame rail.</p> <p>The compartmentation behind the rear axle will include 3.00" steel support assemblies which are bolted to the chassis frame rails and extend underneath to the outside edge of the body. The support assembly will be coated to isolate the dissimilar metals before it is bolted to the body. There will be one (1) support assembly mounted to each chassis frame rail.</p> <p>Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip. The compartment door openings are framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle. Drip protection is provided over all door openings by means of bright aluminum extrusion or formed bright aluminum treadplate. Side compartment tops will be covered with bright aluminum treadplate with a 1.00" rolled over edge on the front, rear and outward side. The covers are fabricated in one (1) piece and have the corners welded. A bright aluminum treadplate cover will be provided on the front wall of each side compartment. All screws and bolts which protrude into a compartment will have acorn nuts at the ends to prevent injury.</p> <p>The body design has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue life and structural integrity of the compartment body and substructure.</p> <p><b>AGGRESSIVE WALKING SURFACE</b></p> <p>All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.</p> <p><b>LOUVERS</b></p> <p>All body compartments will have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers will be formed into the metal and not added to the compartment as a separate plate.</p> |

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| 0063686 | Compt, LS F/H F/D, Lap Drs, w/o Chute, Ascendant Tandem, 105 HDL, 100 HAL | <p><b>LEFT SIDE COMPARTMENTATION</b></p> <p>A full height double door compartment ahead of the rear wheels will be approximately 41.75" wide x 64.00" high x 24.25" deep with a door opening of approximately 40.00" wide x 60.50" high. One (1) lift-up door compartment above the fender compartments and over the rear axles will be provided. The compartment will be approximately 72.13" wide x 33.25" high x 24.25" deep inside with a door opening of approximately 65.00" wide x 29.62" high.</p> <p>A compartment with a single pan polished stainless steel door will be located above the front stabilizer. The door will be hinged on the rear body side with a lift and turn latch. The compartment will be approximately 18.00" wide x 23.00" high x 24.25" deep with a door opening of approximately x 12.00" wide x 15.75" high.</p>  |
| 0063692 | Compt, LS Turntable, F/H F/D, Lap Drs, Ascendant Tandem, 105 HDL          | <p>A full height double door compartment behind the rear wheels will be approximately 43.75" wide x 49.25" high x 21.25" deep inside with a door opening of approximately 42.00" wide x 45.75" high. One (1) compartment below the turntable with a lift-up door will be provided. The compartment will be approximately 39.38" wide x 18.38" high x 21.25" deep inside with a door opening of approximately 35.00" wide x 14.88" high.</p>  |
| 0023672 | Compt, IPO Stairs, Not Required, LS                                       |  |
| 0063717 | Compt, RS F/H, Lap Drs, Ascendant Tandem, 105 HDL, 100 HAL                | <p><b>RIGHT SIDE COMPARTMENTATION</b></p> <p>A full height double door compartment ahead of the rear wheels will be 41.75" wide x 64.00" high x 24.25" deep inside the lower 29.75" and 12.00" deep inside the upper portion with a door opening of 40.00" wide x 60.50" high.</p> <p>One (1) lift-up door compartment above the fender compartments and over the rear axles will be 72.13" wide x 33.25" high x 12.00" deep inside with a door opening of 65.00" wide x 29.62" high. A compartment with a single pan polished stainless steel door will be located above the front stabilizer. The door will be hinged on the top with pneumatic cylinder(s) with a flush lift and turn latch. The compartment will be approximately 18.00" wide x 23.00" high x 12.00" deep with a door opening of approximately x 12.00" wide x 15.75" high.</p>  |
| 0063719 | Compt, RS Turntable, F/H, Lap Drs, Ascendant Tandem, 105 HDL              | <p>A full height double door compartment behind the rear wheels will be 43.75" wide x 49.25" high x 21.25" deep inside the lower 29.75" and 12.00" in the upper portion with a door opening of 42.00" wide x 45.75" high.</p> <p>A compartment below the turntable with a lift-up door will be 39.38" wide x 18.38" high x 12.00" deep inside with a door opening of 35.00" wide x 14.88" high.</p>  |
| 0023673 | Compt, IPO Stairs, Not Required, RS                                       |  |
| 0666824 | Doors, Lap w/"D" Handle, Aluminum, Side Compartments                      | <p><b>SIDE COMPARTMENT DOORS</b></p> <p>All hinged compartment doors will be lap style with double panel construction and fabricated of .09" 5052H32 aluminum. Doors will be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement will be installed between the outer and interior panels. Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment. All compartment doors will have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with stainless steel fasteners. A dielectric substance will be applied to each hinge fastener.</p> <p>All door lock mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.</p> <p>Doors will be latched with recessed, polished stainless steel "D" ring handles and Eberhard 106 locks.</p> <p>To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.</p> |
| 0540787 | Stabilizer Compartment, Modified for 18" Stabilizer Penetration           | <p><b>BODY MODIFICATION FROM STANDARD</b></p> <p>The compartment above the stabilizers (if applicable) will be decreased due to deeper stabilizer depth. The height of the compartment will decrease 4.00" and the compartment door will move up 4.00" higher. The stabilizer frame opening as well as the stabilizer pan will be increased in height by 6.00".</p>  |
| 0552955 | Blister, Compts in Front of Rear Axle, To Clear Firemaax Suspension       | <p><b>COMPARTMENT BLISTER</b></p> <p>A blister in the compartment ahead of the rear wheels will be provided to clear the front bracket of the Firemaax suspension. This blister will take away some of the interior area of the compartment.</p>   |
| 0018820 | Bumper, Rear, 5" w/Treadplate Cover, Ascendant Tandem, PAP, PAL, RMAP     | <p><b>REAR BUMPER</b></p> <p>A 5.00" rear bumper will be furnished. Bumper will be constructed of steel framework and will be covered with polished aluminum treadplate. The bumper will be 4.00" deep x 5.00" high and will be spaced away from the body approximately 1.00". It will extend the full width of the body.</p>  |

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| 0603083 | Lights, Compt,Pierce LED,Dual Light Strips,Each Side Dr,Ascend TA,75'HAL,PAP,HDL | <p><b>COMPARTMENT LIGHTING</b></p> <p>There will be nine (9) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment(s). Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb. Opening the compartment door will automatically turn the compartment lighting on.</p>  |
| 0603420 | Shelf Tracks, Painted, Aerial  | <p><b>MOUNTING TRACKS</b></p> <p>There will be six (6) sets of tracks for mounting shelf(s) in LS1, LS3, LS4, RS1, RS3 and RS4. These tracks will be installed vertically to support the adjustable shelf(s), and will be full height of the compartment. The tracks will be painted to match the compartment interior.</p>  |
| 0600289 | Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations, Aerial    | <p><b>ADJUSTABLE SHELVES</b></p> <p>There will be 12 shelves with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track. The shelves will be held in place by .12" thick stamped plated brackets and bolts. The location(s) will be in RS1 centered between the floor and the ceiling, in RS4 centered between the floor and the ceiling, in RS1 in the lower third, in RS1 in the upper third, in LS1 centered between the floor and ceiling, in LS4 centered between the floor and ceiling, in LS1 in the lower third and in LS1 in the upper third.</p>   |
| 0559456 | Tray, 500 lb Slide-out, 2" Sides - Adj. Height, Full Width                       | <p><b>SLIDE-OUT ADJUSTABLE HEIGHT TRAY</b></p> <p>There will be two (2) slide-out trays provided. Each tray will have 2.00" high sides and a capacity rating of up to 500 lb in the extended position. Each tray will be designed to be as wide as the compartment space will allow. Each tray will be constructed of aluminum painted spatter gray. Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location. An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand. The tray(s) will be located LS4 &amp; RS4.</p>   |
| 0709692 | Tray, 215 lb, Tilt/Slide-Out, 30 Deg, Adj, Predefined Locations                  | <p><b>SLIDE-OUT/TILT-DOWN TRAY</b></p> <p>There will be two (2) slide-out trays provided. The bottom of each tray will be constructed of 0.188" thick aluminum painted spatter gray while special aluminum extrusions will be utilized for the tray sides, ends, and tracks. The corners will be welded to form a rigid unit. A spring loaded lock will be provided on each side at the front of the tray. Releasing the locks will allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray will be equipped with ball bearing rollers for smooth operation. Rubber padded stops will be provided for the tray in the extended position. The capacity rating of the tray will be a minimum of 215 lb in the extended position. The vertical position of the tray within the compartment will be adjustable. The location(s) will be in RS3 centered between the floor and the ceiling and in LS3 centered between the floor and ceiling.</p>   |
| 0603763 | Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides, 2G Aerial                    | <p><b>SLIDE-OUT FLOOR MOUNTED TRAY</b></p> <p>There will be four (4) floor mounted slide-out tray(s) provided. Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position. Each tray will be constructed of aluminum painted spatter gray. There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2. To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117. To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request. Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand. The location(s) will be RS1, RS4, LS1 and LS4.</p> |



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| 0622249 | Toolboard, Alum, Adj, Added to Standard Depth Slide-Out Tray            | <p><b>TOOLBOARD ADDED TO STANDARD DEPTH SLIDE-OUT TRAY</b></p> <p>An aluminum toolboard will be provided and mounted in a standard depth slide-out tray (tray not included). The toolboard will be constructed of 0.19" thick aluminum that is painted spatter gray to match compartment interior. The toolboard will be provided with 0.20" diameter holes in a pegboard pattern with 1.00" centers between holes. A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.</p> <p>The toolboard will span the full depth of the standard depth slide-out tray and will be as tall as possible for the specified mounting location.</p> <p>The toolboard will be mounted on aluminum tracks to allow for side to side adjustment within the tray.</p> <p>The total capacity rating of the toolboard will vary depending on the tray it is mounted in (capacity rating for the toolboard will match the capacity rating of the tray it is mounted in).</p> <p>A total of One (1) toolboard(s) will be provided and mounted in the slide-out tray(s) located LS4 on the pull out tray..</p>  |
| 0659383 | Matting, Turtle Tile w/Ramp, Compt Floors                               | <p><b>MATTING, COMPARTMENT FLOOR</b></p> <p>Turtle Tile compartment matting will be provided in two (2) compartments on the compartment floor. The locations are, LS2 &amp; RS2.</p> <p>The Turtle Tile will be black and the leading edge of the matting will include the beveled edge. The beveled edge will be black .</p>  |
| 0028026 | Matting, Turtle Tile, Compt Shelving only                               | <p><b>MATTING, COMPARTMENT SHELVING</b></p> <p>Turtle Tile compartment matting will be provided in 16 shelves. The locations are, All Shelves and Trays.</p> <p>The color of the Turtle Tile will be black.</p>  |
| 0004016 | Rub Rail, Aluminum Extruded, Side of Body                               | <p><b>RUB RAIL</b></p> <p>Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail. Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.</p> <p>The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.</p>  |
| 0004027 | Fender Crowns, Rear, S/S, Two Pair                                      | <p><b>BODY FENDER CROWNS</b></p> <p>Stainless steel fender crowns will be provided around the rear wheel openings.</p> <p>A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering.</p>   |
| 0519849 | Not Required, Hose, Hard Suction  | <p><b>HARD SUCTION HOSE</b></p> <p>Hard suction hose will not be required.</p>   |
| 0626229 | Handrails, Side Pump Panels, Per Print                                  | <p><b>HANDRAILS</b></p> <p>The handrails will be 1.25" diameter knurled aluminum to provide a positive gripping surface. Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.</p> <p>Drain holes will be provided in the bottom of all vertically mounted handrails.</p> <p>Handrails will be provided to meet NFPA 1901 section 15.8 requirements. The handrails will be installed as noted on the sales drawing.</p>  |
| 0621698 | Compt, Air Bottle, Between Tandems, Four (4) Bottles, w/ Straps, Aerial | <p><b>FOUR AIR BOTTLE STORAGE COMPARTMENT</b></p> <p>A total of two (2) air bottle compartments will be provided and located one (1) on the left side and one (1) on the right side, centered between the tandem rear wheels. The air bottle compartment will consist of individual bins each designed to hold an air bottle with a maximum diameter of 7.63" and a maximum depth of 26.00".</p> <p>Each compartment will hold a total of four (4) air bottles. The compartment will accommodate three (3) bottles across the top and one (1) centered below. The bottom air bottle will be accessible only when the top center bottle is removed and the hinged partition over the bottom bottle is lifted up. Each bottle will be separated by a partition.</p> <p>Flooring will be rubber lined and have a drain hole. A drop down door with support cables with pair of flush lift &amp; turn latches will be provided for each compartment. The door will be polished stainless steel. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p><b>AIR BOTTLE COMPARTMENT STRAP</b></p> <p>Straps will be provided in the air bottle compartment(s) to help contain the top three (3) air bottles. The straps will wrap around the neck of each bottle and attach to the wall of the compartment.</p> |

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| 0778547 | Compt, Extinguisher (2) in Fender Panel, w/ Strap, Triangular Dr, Aerial | <p><b>TRIANGULAR EXTINGUISHER STORAGE</b></p> <p>There will be a total of two (2) extinguisher storage compartment(s) provided on the right side ahead of the rear wheel and on the right side behind the rear wheel. Each triangular shaped compartment will be sized to fit two (2) extinguishers, each with a maximum diameter of 7.50" and an overall width of 11.00". A partition will be provided to separate the bottles. Inside the compartment, black rubber matting will be provided. The compartment will be furnished with a drain hole. A polished stainless steel, triangular shaped door with a chrome plated flush lift &amp; turn latch will be provided to contain the air bottles. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p><b>EXTINGUISHER COMPARTMENT STRAP</b></p> <p>Straps will be provided in the compartment(s) to help contain the extinguishers. The straps will wrap around the neck of each bottle and attach to the wall of the compartment.</p>  |
| 0004218 | Ladder, 35' Duo-Safety 1200A 2-Sect                                      | <p><b>EXTENSION LADDER</b></p> <p>There will be one (1) 35' two (2) section aluminum Duo-Safety Series 1200-A extension ladder(s) provided.</p>  |
| 0010406 | Ladder, 28' Duo-Safety 1200A 2-Section                                   | <p><b>AERIAL EXTENSION LADDERS</b></p> <p>There will be one (1) 28' two (2) section aluminum Duo-Safety Series 1200-A extension ladder(s) provided and located in the aerial torque box.</p>   |
| 0595251 | Ladder, 16' Duo-Safety 875-DR Roof, Hooks Both Ends                      | <p><b>ROOF LADDER</b></p> <p>There will be two (2) 16' aluminum, Duo-Safety, Series 875-DR roof ladder(s) provided. The ladder(s) will have hooks on both ends.</p>  |
| 0648681 | Ladder, 14' Duo-Safety 875-DR Roof                                       | <p><b>ADDED ROOF LADDER</b></p> <p>There will be two (2) aluminum, 14' Duo Safety 875-DR roof ladder provided (1) in Ladder storage at the rear, (1) mounted to base section of aerial behind sign board.</p>  |
| 0664691 | Ladder, 18' Duo-Safety 875A-DR Roof                                      | <p><b>ADDED ROOF LADDER</b></p> <p>There will be one (1) 18' aluminum roof ladder, Series 875-A-DR provided.</p>   |
| 0029514 | Ladder, 14' Duo-Safety 35-B Combo  | <p><b>ATTIC EXTENSION LADDER, AERIAL</b></p> <p>There will be a 14' combination, aluminum, Duo-Safety, Series 35-B extension ladder provided.</p>  |
| 0004246 | Ladder, 10' Duo-Safety Folding, 585A                                     | <p><b>AERIAL FOLDING LADDER</b></p> <p>There will be one (1) 10' aluminum Duo-Safety Series 585-A folding ladder(s) provided and located in the aerial torque box.</p>   |
| 0042207 | Ladders Stored in Torque Box, Gortite Roll, Ascendant TA, PAL, PAP       | <p><b>GROUND LADDER STORAGE</b></p> <p>The ground ladders are stored within the torque box and are removable from the rear. Ladders will be enclosed to prevent road dirt and debris from fouling or damaging the ladders. The ladders rest in full length stainless steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder. A Gortite rollup door will be provided at the rear, double faced, aluminum construction, and an anodized satin finish. A polished stainless steel lift bar to be provided for the rear roll-up door. The latching mechanism will consist of a full length lift bar lock with latches on the outer extrusion of the door frame. A stainless plate with a 2-bend flange and a stainless steel hinge will be provided to secure the aerial ladder complement. The plate assembly will be mounted to the bottom of the entrance of the torque box ladder storage area. When the plate is vertical, it will secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door can not close, which will activate the "Open Door Indicator Light" within the cab. The rollup door together with hinge friction will secure the plate in place during driving operations. A door guard will be provided to prevent tools inside the torque box from damaging the rollup door.</p> |
| 0789440 | Lights, Torque Box Ladder Storage, Truck-Lite 40227C 1lt, Incd, Round 4" | <p><b>LADDER STORAGE LIGHTING</b></p> <p>There will be one (1) Truck Lite Model 40227C, 4.00" white incandescent light with Model 40700, grommet used to illuminate the torque box ladder storage compartment. One (1) light will be provided in the ceiling of the torque box near the ladder storage entry area. The light will be activated when the ladder storage compartment door is opened.</p>   |
| 0658169 | Ladders, Nested, Left Side Ground Ladder Storage                         | <p><b>NESTED LADDER STORAGE</b></p> <p>There will be nested ladders on the left side of the ladder storage compartment. The ladders will be nested so that one ladder can be removed without removing the adjoining ladder.</p>  |

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| 0658170 | Ladders, Nested, Right Side Ground Ladder Storage                            | <b>NESTED LADDER STORAGE</b><br>There will be nested ladders on the right side of the ladder storage compartment.  |
| 0032955 | Pike Pole, 12' Fire Hooks Unlimited, Wood Handle, NH-12'                     | <b>12' PIKE POLES</b><br>There will be two (2) Fire Hooks Unlimited, Model NH-12 pike pole(s) with wood handles provided. The pike pole(s) will be stored in tubular holders located in the ground ladder storage compartment.   |
| 0032956 | Pike Pole, 8' Fire Hooks Unlimited, Wood Handles, NH-8'                      | <b>8 FT PIKE POLE</b><br>There will be two (2) Fire Hooks Unlimited, Model NH-8 pike pole(s) with wood handles provided.   |
| 0549137 | Not Required, Pike Pole, 6'  |  |
| 0014343 | Not Required, Pike Pole, 3'  |  |
| 0780826 | Trash Hook, 8' Fire Hooks Unlimited, TRH-8, w/D Handle, Turn 90 Degrees      | <b>ADDITIONAL PIKE POLE(S)</b><br>There will be two (2) 8' long trash hook(s), Fire Hooks Unlimited, Model TRH-8, with D handle provided and located Ladder storage area. The D-handle will be turned 90 degrees from standard.  |
| 0027785 | Pike Pole, 8' Fire Hooks Unlimited, New York Roof Hook, Steel, RH-8, Pry End | <b>ADDITIONAL PIKE POLE(S)</b><br>- two (2) 8' long pike pole(s), Fire Hooks Unlimited #RH-8 with steel handle and pry end will be provided.   |
| 0770464 | Trough, S/S, Torque Box/Ladder Storage, D-Handled Pike Pole/Trash Hooks      | <b>PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE</b><br>There will be a total of two (2) stainless steel trough(s) provided in the torque box/ladder storage area.<br>The trough(s) will accommodate a Nupla fiberglass 8' roof vent/trash hook with D handle.  |
| 0770578 | Pike Pole Tubes, in Torque Box/Ladder Storage, ABS                           | <b>PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE</b><br>There will be ABS tubing provided in the torque box/ladder storage area for a total of six (6) pike poles.<br>If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.   |
| 0780964 | SP Label, Overall Height, in Cab   | <b>OVERALL HEIGHT/WEIGHT LABEL</b><br>A label indicating the overall height of the vehicle will be provided In view of the Driver. Customer requests the Vehicle OAH +2" for additional safety in the cab.   |
| 0024388 | No Steps Required, Front Of Body   |  |
| 0004435 | Pump, Waterous, CSU, 2000 GPM, Single Stage                                  | <b>PUMP</b><br>Pump will be a Waterous CSU, 2000 gpm single (1) stage midship mounted centrifugal type.<br>Pump will be the class "A" type.<br>Pump will deliver the percentage of rated discharge at pressures indicated below:<br>- 100% of rated capacity at 150 psi net pump pressure.<br>- 70% of rated capacity at 200 psi net pump pressure.<br>- 50% of rated capacity at 250 psi net pump pressure.<br>Pump body will be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).<br>Pump will be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.<br>Pump case halves will be bolted together on a single horizontal face to minimize a chance of leakage and facilitate ease of reassembly. No end flanges will be used.<br>Discharge manifold of the pump will be cast as an integral part of the pump body assembly and will provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.<br>The three (3) 3.50" openings will be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.<br>Impeller shaft will be stainless steel, accurately ground to size. It will be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller will have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.<br>Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used. |

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| 0004481 | Seal, Grafoil, Waterous  | <b>PUMP PACKING</b>  |
|         |  | Stuffing boxes will be of the conventional two (2) piece, split-gland type, to permit adjustment or replacement of Grafoil packing without disturbing the pump. Water will be fed into stuffing box lantern rings for proper lubrication and cooling when the pump is operating. Lantern rings will be located at the inner ends of the stuffing boxes, to avoid having to remove them when replacing pump packing. Wear rings will be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.   |
| 0559769 | Trans, Pump, Waterous C20 Series                                 | <b>PUMP TRANSMISSION</b>   |
|         |  | The pump transmission will be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump will be through a high strength Morse HY-VO silent drive chain. By the use of a chain rather than gears, 50% of the sprocket will be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work. Drive shafts will be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case will be designed to eliminate the need for water cooling.  |
| 0635600 | Pumping Mode, Stationary Only                                    | <b>PUMPING MODE</b>  |
|         |  | An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system will be designed to allow stationary pumping only.  |
| 0605126 | Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous | <b>AIR PUMP SHIFT</b>  |
|         |  | Pump shift engagement will be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A manual back-up shift control will also be located on the left side pump panel. Two (2) indicator lights will be provided adjacent to the pump shift inside the cab. One (1) green light will indicate the pump shift has been completed and be labeled "pump engaged". The second green light will indicate when the pump has been engaged, and that the chassis transmission is in pump gear. This indicator light will be labeled "OK to pump". The pump shift will be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements. The pump shift control in the cab will be illuminated to meet NFPA requirements. |
| 0003148 | Transmission Lock-up, EVS  | <b>TRANSMISSION LOCK-UP</b>  |
|         |  | The direct gear transmission lock-up for the fire pump operation will engage automatically when the pump shift control in the cab is activated.  |
| 0004547 | Auxiliary Cooling System   | <b>AUXILIARY COOLING SYSTEM</b>  |
|         |  | A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be a separate unit. The heat exchanger will be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger will be plumbed to the master drain valve.   |
| 0014486 | Not Required, Transfer Valve, Stage Pump                         |  |
| 0746501 | Valve, Relief Intake, Elkhart                                    | <b>INTAKE RELIEF VALVE - PUMP</b>  |
|         |  | There will be one (1) Elkhart Style 40 relief valve(s) installed on the suction side of the pump preset at 125 psig. The relief valve(s) will have a working range of 75 psi to 250 psi. The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag. The relief valve pressure control will be located behind behind the right side pump panel with a stainless steel access door .   |
| 0794959 | Controller, Pressure, Pierce, Pump Boss, PBA300                  | <b>PRESSURE CONTROLLER</b>   |
|         |  | A Pierce Pump Boss Model PBA300 pressure governor will be provided. A pressure transducer will be installed in the water discharge manifold on the pump. The display panel will be located at the pump operator's panel.   |
| 0072153 | Primer, Trident, Air Prime, Air Operated                         | <b>PRIMING PUMP</b>  |
|         |  | The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. One (1) priming control will open the priming valve and start the pump primer.   |

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| 0780364 | Manuals, Pump, (2) Total, Electronic Copies                         | <b>PUMP MANUALS</b><br>There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.   |
| 0602512 | Plumbing, Stainless Steel and Hose, Single Stage Pump, Control Zone | <b>PLUMBING, STAINLESS STEEL AND HOSE</b><br>All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.<br>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.<br>Plumbing manifold bodies will be ductile cast iron or stainless steel.<br>All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.<br>All water carrying gauge lines will be of flexible polypropylene tubing.<br>All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating. |
| 0795135 | Plumbing, Stainless Steel, w/Foam System                            | <b>FOAM SYSTEM PLUMBING</b><br>All piping that is in contact with the foam concentrate or foam/water solution will be stainless steel. The fittings will be stainless steel or brass. Cast iron pump manifolds will be allowed.   |
| 0004645 | Inlets, 6.00" - 1250 GPM or Larger Pump                             | <b>MAIN PUMP INLETS</b><br>A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.  |
| 0004646 | Cap, Main Pump Inlet, Long Handle, NST, VLH                         | <b>MAIN PUMP INLET CAP</b><br>The main pump inlets will have National Standard Threads with a long handle chrome cap. The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.   |
| 0014650 | Pump Suction Tube(s), Short, All                                    | <b>SHORT SUCTION TUBE(S)</b><br>The suction tube(s) on the water pump will have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.  |
| 0084610 | Valves, Akron 8000 series- All                                      | <b>VALVES</b><br>All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.<br>Valves will have a <b>ten (10) year</b> warranty.   |
| 0004660 | Inlet (1), Left Side, 2.50"   | <b>LEFT SIDE INLET</b><br>There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.<br>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.  |
| 0004680 | Inlet, Right Side, 2.50"  | <b>RIGHT SIDE INLET</b><br>There will be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.<br>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.  |
| 0016158 | Valve, Inlet(s) Recessed, Side Cntrl, "Control Zone"                | The location of the valve for the one (1) inlet will be recessed behind the pump panel.   |
| 0004700 | Control, Inlet, at Valve  | <b>INLET CONTROL</b><br>The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.  |
| 0092569 | No Rear Inlet (Large Dia) Requested                                 |   |
| 0092696 | Not Required, Cap, Rear Inlet                                       |   |
| 0064116 | No Rear Inlet Actuation Required                                    |   |

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| 0009648 | No Rear Intake Relief Valve Required on Rear Inlet |  |
| 0092568 | No Rear Auxiliary Inlet Requested                  |  |
| 0563738 | Valve, .75" Bleeder, Aux. Side Inlet, Swing Handle | <p><b>INLET BLEEDER VALVE</b><br/> A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.</p>   |
| 0029043 | Tank to Pump, (1) 3.00" Valve, 3.00" Plumbing      | <p><b>TANK TO PUMP</b><br/> The booster tank will be connected to the intake side of the pump with stainless steel piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line will run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing. A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p> |
| 0004905 | Outlet, Tank Fill, 1.50"                           | <p><b>TANK REFILL</b><br/> A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p>   |
| 0004940 | Outlet, Left Side, 2.50"                           | <p><b>LEFT SIDE DISCHARGE OUTLETS</b><br/> There will be Two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p>   |
| 0092570 | Not Required, Outlets, Left Side Additional        |  |
| 0004945 | Outlet, Right Side, 2.50"                          | <p><b>RIGHT SIDE DISCHARGE OUTLETS</b><br/> There will be One (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p>  |
| 0092571 | Not Required, Outlets, Right Side Additional       |  |
| 0005047 | Outlet, 4" w/4" Right, Handwheel                   | <p><b>LARGE DIAMETER DISCHARGE OUTLET</b><br/> There will be a 4.00" discharge outlet with a 4.00" Akron valve installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread adapter. This discharge outlet will be actuated with a handwheel control at the pump operator's control panel. An indicator will be provided to show when the valve is in the closed position.</p>   |
| 0649939 | Outlet, Front, 1.50" w/2" Plumbing                 | <p><b>FRONT DISCHARGE OUTLET</b><br/> There will be one (1) 1.50" discharge outlet piped to the front of the apparatus and located in the center bumper tray. Plumbing will consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe will be used in the plumbing where appropriate. The piping will terminate with a 1.50" NST with 90 degree stainless steel swivel. There will be automatic drains provided at all low points of the piping.</p>   |
| 0092575 | Not Required, Outlet, Rear                         |  |
| 0092574 | Not Required, Outlet, Rear, Additional             |  |
| 0092573 | Not Required, Outlet, Hose Bed/Running Board Tray  |  |

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|---------|--|--|
| 0752097 | Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Chain             | <p><b>DISCHARGE CAPS/ INLET PLUGS</b><br/> Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.<br/> Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.<br/> The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p>   |
| 0563739 | Valve, 0.75" Bleeder, Discharges, Swing Handle                     | <p><b>OUTLET BLEEDER VALVE</b><br/> A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.<br/> The valves will be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.</p> |
| 0005091 | Elbow, Left Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH  | <p><b>LEFT SIDE OUTLET ELBOWS</b><br/> The 2.50" discharge outlets located on the left side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.<br/> The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>  |
| 0035094 | Not Required, Elbow, Left Side Outlets, Additional                 |  |
| 0025091 | Elbow, Right Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH | <p><b>RIGHT SIDE OUTLET ELBOWS</b><br/> The 2.50" discharge outlets located on the right side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.<br/> The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>  |
| 0089584 | Not Required, Elbow, Right Side Outlets, Additional                |  |
| 0045099 | Not Required, Elbow, Rear Outlets                                  |  |
| 0085695 | Not Required, Elbow, Rear Outlets, Large, Additional               |  |
| 0566073 | Elbow, Large Dia Outlet, 30 Deg, 4.00" FNST x 4.50" MNST           | <p><b>LARGE DIAMETER OUTLET ELBOWS</b><br/> The 4.00" outlet will be furnished with a 4.00" (F) National Standard hose thread swivel x 4.50" (M) National Standard hose thread elbow adapter with cap.</p>   |
| 0062133 | Control, Outlets, Manual, Pierce HW if applicable                  | <p><b>DISCHARGE OUTLET CONTROLS</b><br/> The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve. If a handwheel control valve is used, the control will be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built in to the center of the handwheel.<br/> Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 16.7.5.3.</p>   |
| 0029106 | Not Required, Deluge Outlet  |  |
| 0029302 | No Monitor Requested   |  |
| 0029304 | No Nozzle Req'd  |  |
| 0005070 | Deluge Mount, NPT  | The deluge riser will have male National Pipe Threads for mounting the monitor.  |

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| 0047583 | Waterway Outlet & Control, 4" Akron, Handwheel                            | <p><b>AERIAL OUTLET</b><br/> The aerial waterway will be plumbed from the pump to the water tower line with 5.00" pipe and a 4.00" Akron valve. The handwheel control for the waterway valve will be located at the pump operator's panel.<br/> An indicator will be provided to show the position of the valve.</p>  |
| 0723726 | Speedlay Module Not Required  |   |
| 0722473 | Hose Restraint Not Required, No Spdly Module                              |   |
| 0723395 | Speedlays, Not Required   |   |
| 0723394 | Speedlays, Not Required   |   |
| 0029167 | Crosslays Sngl Sheet Unpainted, (2+) 1.50", Std. Cap                      | <p><b>CROSSLAY HOSE BEDS</b><br/> Two (2) crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose and will be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.<br/> Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus.<br/> The crosslay controls will be at the pump operator's panel.<br/> The center crosslay dividers will be fabricated of 0.25" aluminum and will provide adjustment from side to side. The divider will be unpainted with a brushed finish.<br/> Vertical scuffplates constructed of stainless steel will be provided at the front and rear ends of the bed on each side of vehicle.<br/> Crosslay bed flooring will consist of removable perforated brushed aluminum.</p>   |
| 0029196 | Not Required, 2.50" Crosslay  |   |
| 0591138 | Hose Restraint, Crosslay/Deadlay, Vinyl, Strap Fasteners, Each Side, Ends | <p><b>CROSSLAY/DEADLAY HOSE RESTRAINT</b><br/> There will be black vinyl end flap provided across each end of two (2) crosslay/deadlay opening (s) to secure the hose during travel. Each vinyl end flap will be permanently attached at the top of the crosslay/deadlay opening(s). 1.00" web straps will loop through footman loops at the opposite end of the permanently attached vinyl. They will be attached with spring clip and hook fasteners.</p>   |
| 0064149 | Deadlay(s), Crosslay style, Any Capacity                                  | <p><b>DEADLAY HOSE BEDS</b><br/> One (1) deadlay bed, without plumbing, will be provided above the pump compartment capable of carrying 400' of 2.5" dbl jacket hose in 2 width stacks.<br/> Stainless steel vertical scuffplates will be provided at hose bed ends (each side of vehicle). The bottom of hose bed ends (each side) will also be equipped with a stainless steel scuffplate.<br/> Deadlay bed flooring will consist of removable perforated brushed aluminum.</p>   |
| 0752403 | Hose Restr, Spdly, 2"Nylon Web, Bottom Anchored                           | <p><b>SPEEDLAY HOSE RESTRAINT</b><br/> A 2.00" black nylon webbing design restraint will be provided across the ends of speedlay(s) to secure the hose during travel. The webbing assembly is to be attached at the bottom of the speedlay(s) with footman loops as a permanent attachment and is attached at the top with 2.00" cam buckle fastener(s).</p>  |
| 0590877 | Hose Restraint, Crosslay/Deadlay, Aluminum Treadplate, Top Only           | <p><b>CROSSLAY/DEADLAY HOSE RESTRAINT</b><br/> An aluminum treadplate cover, hinged at the front will be installed over the top of the crosslay/deadlay(s). It will include a latch at each end of the cover to hold it securely in place, a chrome grab handle at each end for opening and closing the cover and a foam rubber gasket where the cover comes into contact to a painted surface. The cover will be provided with socket and plunger hold open device.</p>  |
| 0095358 | Foam Sys, Husky 12, Single Agent  | <p><b>FOAM PROPORTIONER</b><br/> A Pierce Husky™ 12 foam proportioning system will be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically balance and proportion foam solution at rates from .1 percent to 9.9 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.<br/> The design of the system will allow operation from draft, hydrant, or relay operation. This will provide a versatile system to meet the demands at a fire scene.</p> <p><b>System Capacity</b><br/> The system will have the ability to deliver the following minimum foam solution flow rates that meet or exceed NFPA requirements at a pump rating of 250 psi.<br/> 200 gpm @ 6 percent<br/> 400 gpm @ 3 percent</p> |



1200 gpm @ 1 percent

The foam concentrate setting may be adjusted in .1 percent increments from .1 percent to 9.9 percent. Typical settings are .3 percent, .5 percent and 1.0 percent (The maximum capacity will be limited to the plumbing and water pump capacity).

#### **Control System**

The system will be equipped with a digital electronic control display located on the pump operators panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, direct which foam to use on a multi-tank system, and to set the operation modes (automatic, manual, draft, calibration, or flush).

The percent of injection will have presets for Class A or Class B foam. These presets can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

In order to minimize the use of abbreviations and interpretations, system information will be displayed on the panel by way of .50 tall LEDs that total 14 characters (two (2) lines of seven (7) each). System on and foam pump on indicator lights will also be included. Information displayed will include mode of operation (automatic, manual, draft, calibration, or flush), foam supply selected (Class A or Class B), water total, foam total, foam percentage, remaining gallons, and time remaining.

The control display will direct a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor will compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve will be installed in the plumbing to prevent foam from contaminating the water pump.

#### **Low Level Foam Tank**

The control head will display a warning message when the foam tank in use is below a quarter tank.

#### **Hydraulic Drive System**

The foam concentrate pump will be powered by a hydraulic drive system, which is automatically activated, whenever the vehicle water pump is engaged. A large parasitic electric load used to power the foam pump can cause an overload of the chassis electrical system.

Hydraulic oil cooler will be provided to automatically prevent overheating of the hydraulic oil, which is detrimental to system components. The oil/water cooler will be designed to allow continuous system operation without allowing hydraulic oil temperature to exceed the oil specifications.

The hydraulic oil reservoir will be of four (4) gallons minimum capacity and will also be of sufficient size to minimize foaming and be located to facilitate checking oil level or adding oil without spillage or the need to remove access panels.

#### **Foam Concentrate Pump**

The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic motor. The pump will be constructed of brass body; chrome plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum will be present in its construction.

A relief system will be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump will have minimum capacity for 12 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system will deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

#### **External Foam Concentrate Connection**

An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty. The external foam pick-up will be designed to allow use with training foam or colored water for training purposes.

#### **Panel Mounted Strainer / External Pick-Up Connection**

A bronze body strainer / connector unit will be provided. The unit will be mounted to the pump panel. The external foam pick-up will be one (1) 1.00" male connection with chrome-plated cap integrated to a 2.00" strainer cleanout cap. A check valve will be installed in the pick-up portion of the cleanout cap. A basket style stainless steel screen will be installed in the body of the strainer / connector unit. Removal of the 2.00" cleanout cap will be all that is required to gain access to and remove the stainless steel basket screen. The strainer / connector unit will be ahead of the foam concentrate pump inlet port to insure that all agents reaching the foam pump has been strained.

#### **Pick-Up Hose**

A 1.00" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 1.00" female swivel NST thread swivel connector. The hose will be shipped loose.

#### **Discharges**

The foam system will be plumbed to three (3) discharges. The discharges capable of dispensing foam will be Both crosslay and Front Bumper.

#### **System Electrical Load**

The foam proportioning will not impose an electrical load on the vehicle electrical system any greater than five (5) amps at 12VDC.

#### **Foam Supply Valve**

An electric valve will be used for the foam supply valve. The foam supply valve will be controlled at the foam system control head for ease of operation. The supply valve will be electric, remote controlled, to eliminate air pockets in the foam tank supply hose.

#### **Maintenance Message**

A message will be displayed on the control head to advise when system maintenance needs to be performed. The message will display interval for cleaning the foam strainer, cleaning for the water strainers, and changing the hydraulic oil.

#### **Flush System**

The system will be designed such that a flush mode will be provided to allow the system to flush all foam concentrate with clear water. The flush circuit control logic will ensure the foam tank supply valve is closed prior to opening the flush valve. The flush valve will be operated at the foam system control head for ease of operation. The valve will be electrically controlled and

located as close to the foam tank supply valve as possible. A manual flush drain valve will be labeled and located under the left side running board.

0012126 Not Required, CAF Compressor

0552481 Refill, Foam Tank, Single Tank, Husky 12, Class A Foam

**SINGLE FOAM TANK REFILL**

The foam system's proportioning pump will be used to fill the Class A foam tank. This will allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller stating TANK FILL. While the proportioner pump is filling the tank, the controller will display FILL TANK. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will display TANK FULL.

0031896 Demonstration, Foam System, Dealer Provided

0041377 Foam Cell, 25 Gallon, Reduce Water

**FOAM TANK**

The foam tank will be an integral portion of the polypropylene water tank. The cell will have a capacity of 25 gallons of foam with the intended use of Class A foam. The foam cell will reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid.

0505016 Drain, 1.00", Foam Tank #1, Husky 12 Foam System

**FOAM TANK DRAIN**

A system of 1.00" foam tank drains will be provided, integrated into the foam systems strainer and tank to foam pump valve management system. The tank to pump hoses running from the tank(s) to the panel mounted strainer will 1.00" diameter. The foam system controller will have a mode that allows for a given foam valve to be opened at will. Flow of foam from the tank valve to the strainer will be usable as a tank drain mode.

An adaptor will be supplied, that allows the 1.00" foam intake screen to assembly to be used as a drain outlet. The standard supplied 1.00" foam pick up hose will be attached to the screen assembly by way of the adapter. The drain mode will allow the operator to open and close the tank valve as required from the control head, to drain foam and re-fill foam containers through the connected hose, without foam spillage beneath the vehicle.

0091079 Not Required, Foam Tank #2

0091112 Not Required, Foam Tank #2 Drain

**PUMP COMPARTMENT**

The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment will be constructed of the same material as the body compartmentation.

The pump compartment substructure will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.

The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.

Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.

**PUMP MOUNTING**

Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump.

**LEFT SIDE PUMP CONTROL PANELS**

All pump controls and gauges will be located at the left (driver's) side of the apparatus and properly identified.

Layout of the pump control panel will be ergonomically efficient and systematically organized.

The pump operator's control panel will be removable in two (2) main sections for ease of maintenance:

The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges.

The lower section of the panel will contain all inlets, outlets, and drains.

All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.

**IDENTIFICATION TAGS**

The identification tag for each valve control will be recessed in the face of the tee handle.

All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge.

All line pressure gauges will be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag.

All remaining identification tags will be mounted on the pump panel in chrome plated bezels.

The pump panel on the right (passenger's) side will be removable with lift and turn type fasteners. Trim rings will be installed around all inlets and outlets.

The following drawing(s) will be provided for approval by the customer. The drawing(s) will be made for up One (01) Truck apparatus and/or similar Pierce job number.

**PUMP OPERATOR'S PANEL DRAWING**

A detailed drawing to scale of the pump operator's panel will be provided for the customer to review. The drawing will include all of the gauges, controls, switching, etc., located on the pump operator's panel. The customer will be allowed to make changes and/or mark-ups to this approval drawing. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved pump operator's panel drawing will become part of the contract documents.

Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.

**COLOR CODED TAGS**

A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the colors will become part of the contract documents.

**SPECIAL TEXT/VERBIAGE TAGS**

A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the text/verbiage will become part of the contract documents.

**PUMP PANEL CONFIGURATION**

The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.

|         |  |  |
|---------|--|--|
| 0562698 | Step, Slide-Out/Fold-Out, Pump Operator Platform, Aerial                         | <p><b>PUMP OPERATOR'S PLATFORM</b></p> <p>A pull out, flip down platform will be provided at the pump operator's control panel. The front edge and the top surface of the platform will be made of DA finished aluminum with a Morton Cass insert.</p> <p>The platform will be approximately 13.75" deep when in the stowed position and approximately 22.00" deep when extended. The platform stepping surface will be 35.00" wide. The platform will lock in the retracted and the extended position.</p> <p>The platform will be wired to the "step not stowed" indicator in the cab.</p>   |
| 0667186 | Light, Slide-Out Pump Operator Step, On Scene Solutions Access LED, Short Step   | <p><b>PUMP OPERATOR'S PLATFORM PERIMETER LIGHT</b></p> <p>There will be an On Scene Solutions, Model Night Stick Access, 20.00" white 12 volt DC LED strip light provided to illuminate the ground area.</p>   |
| 0005525 | Material, Pump Panels, Side Control Brushed Stainless                            | <p><b>PUMP AND GAUGE PANEL</b></p> <p>The pump and gauge panels will be constructed of stainless steel with a brushed finish. A polished aluminum trim molding will be provided on both sides of the pump panel.</p>   |
| 0005578 | Panel, Pump Access - Right Side Only   | The right side pump panel will be removable and fastened with swell type fasteners.  |
| 0035501 | Pump House Structure, Std Height   |  |
| 0583824 | Light, Pump Compt, Wln 3SC0CDCR LED White  | <p><b>PUMP COMPARTMENT LIGHT</b></p> <p>There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the pump compartment.</p> <p>There will be a switch accessible through a door on the pump panel included with this installation.</p>  |
| 0586382 | Gauges, Engine, Included With Pressure Controller                                | <p>Engine monitoring graduated LED indicators will be incorporated with the pressure controller. Also provided at the pump panel will be the following:</p> <ul style="list-style-type: none"> <li>- Master Pump Drain Control</li> </ul>  |
| 0005601 | Throttle, Engine, Incl'd w/Press Controller                                      |  |
| 0739224 | Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle,Green | <p><b>THROTTLE READY GREEN INDICATOR LIGHT</b></p> <p>There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.</p>  |
| 0549333 | Indicators, Engine, Included with Pressure Controller                            |  |
| 0745568 | Indicator Light, Pump Panel, Ok To Pump, Green                                   | <p><b>OK TO PUMP INDICATOR LIGHT</b></p> <p>There will be a green indicator light installed on the pump operators panel that is activated when the pump is in Ok To Pump mode.</p>   |
| 0673431 | Switch w/Ind, Pump Panel for Warning Light, 12 VDC                               | <p>There will be a switch at the pump operators panel that can deactivate the warning light in that vicinity.</p> <p>This switch will only be active when the parking brake is applied and the pump is shifted into gear.</p>  |
| 0511078 | Gauges, 4.00" Master, Class 1, 30"-0-600psi                                      | <p><b>VACUUM AND PRESSURE GAUGES</b></p> <p>The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.</p> <p>The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#.</p> <p>Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.</p> <p>Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.</p> <p>This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> |

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|---------|---|---|
| 0511100 | Gauge, 2.00" Pressure, Class 1, 30"-0-400psi                                | <p><b>PRESSURE GAUGES</b><br/> The individual "line" pressure gauges for the discharges will be Class 1© interlube filled. They will be a minimum of 2.00" in diameter and have white faces with black lettering. Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.<br/> Gauges will have a pressure range of 30"-0-400#. The individual pressure gauge will be installed as close to the outlet control as practical. This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p>   |
| 0604123 | Gauge, Water Level, FRC, WLA 300-A00, TankVision Pro, w/Remote Light Driver | <p><b>WATER LEVEL GAUGE</b><br/> A Fire Research TankVision Pro model WLA300-A00 water tank indicator gauge shall be installed on the pump operators panel. The gauge kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The gauge shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The gauge case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.<br/> The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank and down chasing LEDs when the tank is almost empty.<br/> The gauge shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.</p> <p><b>REMOTE LIGHT DRIVER</b><br/> A Fire Research TankVision model WLA290-A00 remote light driver shall be installed. The driver shall provide four (4) separate outputs to control additional water level lights around the apparatus. The lights shall show 1/4, 1/2, 3/4, and full tank. When power is applied the driver shall run a test and cycle each remote light on and off. When the tank is less than 1/4 full the 1/4 tank light shall blink.</p> |
| 0084763 | Gauge, Ernst Sight Water Level, w/Red Ball, IATS                            | <p><b>WATER LEVEL GAUGE, ADDITIONAL</b><br/> An additional water level gauge will be provided. An Ernst sight tube water level indicator with a floating red ball will be mounted on the gauge panel with an unrestricted view for the operator.</p>  |
| 0750438 | Water Level Gauge, WIn PSTANK2, LED 1-Light, 4-Level                        | <p><b>WATER LEVEL GAUGE</b><br/> There will be two (2) additional water level indicator(s), Whelen®, Model PSTANK2, LED module with chrome trim, installed one (1) on the cab behind the left cab door and one (1) on the cab behind the right cab door.<br/> This light module(s) will include four (4) colored levels, and function similar to the water level indicator located at the operators panel:<br/> First green module indicates a full water level<br/> Second blue module indicates a water level above 3/4 full<br/> Third amber module indicates a water level above 1/2 full<br/> Last red module indicates a water level above 1/4 full and empty<br/> Above 1/4 this light will be steady burning<br/> At empty this light will be flashing<br/> The flash rate will be determined by the main water level tank sensor.<br/> This module will be activated when the pump is in gear.</p>   |
| 0062992 | Gauge, Foam Level, (1) Tank, Class 1, GAAAR 5t                              | <p><b>FOAM LEVEL GAUGE</b><br/> An electronic foam level gauge will be provided on the operator's panel that registers foam level by means of five (5) colored LED lights. The lights will be durable, ultra-bright five (5) LED design viewable through 180 degrees. The foam level indicators will be as follows:<br/> 100 percent = Green<br/> 75 percent = Yellow<br/> 50 percent = Yellow<br/> 25 percent = Yellow<br/> Refill = Red<br/> The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the foam tank is empty.<br/> The level measurement will be based on the sensing of head pressure of the fluid in the tank. The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from foam and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The display will be able to be calibrated in the field and will measure head pressure to accurately show the tank level.</p>  |

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| 0593161 | Light Shield, S/S LED   | <p><b>LIGHT SHIELD</b></p> <p>There will be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel.</p> <p>There will be 12 volt DC white LED lights installed under the stainless steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house. One (1) pump panel light will come on when the pump is in ok to pump mode. There will be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.</p> |
| 0606697 | Air Horns, (2) Grover, In Bumper  | <p><b>AIR HORN SYSTEM</b></p> <p>There will be two (2) Grover air horns recessed in the front bumper. The horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed in-line to prevent loss of air in the air brake system.</p>   |
| 0606835 | Location, Air Horns, Bumper, Each Side, Outside Frame, Outboard (Pos #1 & #7) | <p><b>Air Horn Location</b></p> <p>The air horns will be located on each side of the bumper, towards the outside.</p>  |
| 0006064 | Control, Air Horn, DS & PS Foot Sw  | <p><b>AIR HORN CONTROL</b></p> <p>The air horns will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.</p>   |
| 0506813 | Switch, Air Horns, Push Button Control, Additional                            | <p><b>AIR HORN CONTROL</b></p> <p>A push button control for the air horns will be provided. The switch will be provided Pump Panel.</p>  |
| 0525667 | Siren, WIn 295SLSA1, 100 or 200 Watt  | <p><b>ELECTRONIC SIREN</b></p> <p>A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone will be provided. This siren to be active when the battery switch is on and that emergency master switch is on.</p>  |
| 0510206 | Location, Elect Siren, Recessed Overhead In Console                           | Electronic siren head will be recessed in the driver side center switch panel.   |
| 0076156 | Control, Elec Siren, Head Only  | The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.  |
| 0601306 | Speaker, (1) WIn, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt  | <p><b>SPEAKER</b></p> <p>There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.</p>   |
| 0601565 | Location, Speaker, Frt Bumper, Recessed, Center (Pos 4)                       | The speaker(s) will be recessed in the center of the front bumper.   |
| 0016080 | Siren, Federal Q2B  | <p><b>AUXILIARY MECHANICAL SIREN</b></p> <p>A Federal Q2B® siren will be furnished. The control solenoid will be powered up after the emergency master switch is activated.</p>  |
| 0006095 | Siren, Mechanical, Mounted Above Deckplate                                    | The mechanical siren will be mounted on the bumper deck plate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.  |
| 0026163 | Control, Mech Siren, DS & PS Foot Sw  | The mechanical siren will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.  |
| 0740391 | Sw, Siren Brake, Momentary Chrome Push Button, RS                             | A momentary chrome push button switch will be included in the right side dash panel to activate the siren brake.   |
| 0731683 | Sw, Siren Brake, Mom Rocker, Red Outline, Lower Sw Pnl, Mux                   | A momentary rocker switch with red outline around the black switch will be included in the lower switch panel to activate the siren brake.   |
| 0746353 | Not Required, Warning Lights Intensity  |  |

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| 0791893 | SP Lightbar, Wln, Freedom IV-Q, 2-21.5", RRRRR RRsrRR                      | <p><b>FRONT ZONE UPPER WARNING LIGHTS</b></p> <p>There will be two (2) 21.50" Whelen® Freedom™ IV lightbars mounted on the cab roof, one (1) on each side, above the driver's and passenger's door, facing forward.</p> <p>The driver's side lightbar will include the following:</p> <ul style="list-style-type: none"> <li>One (1) red flashing LED module in the outside end position.</li> <li>One (1) red flashing LED module in the outside front corner position.</li> <li>One (1) red flashing LED module in the outside front position.</li> <li>One (1) red flashing LED module in the inside front position.</li> <li>One (1) red flashing LED module in the inside front corner position.</li> </ul> <p>The passenger's side lightbar will include the following:</p> <ul style="list-style-type: none"> <li>One (1) red flashing LED module in the inside front corner position.</li> <li>One (1) red flashing LED module in the inside front position.</li> <li>One (1) steady red LED module in the outside front position.</li> <li>One (1) red flashing LED module in the outside front corner position.</li> <li>One (1) red flashing LED module in the outside end position.</li> </ul> <p>There will be clear lenses and colored filters included on the lightbar.</p> <p>There will be a switch in the cab on the switch panel to control the lightbars.</p> |
| 0898734 | Light, Front Zone, Wln M6** M6** M6** M6** Q Bzl                           | <p><b>CAB FACE WARNING LIGHTS</b></p> <p>There will be four (4) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights installed on the cab face, above the headlights in a housing that matches the headlights per the following:</p> <ul style="list-style-type: none"> <li>The left side outside warning light to include red LEDs.</li> <li>The left side inside warning light to include red LEDs.</li> <li>The right side inside warning light to include red LEDs.</li> <li>The right side outside warning light to include red LEDs.</li> </ul> <p>The warning light lens colors to be the same as the LEDs.</p> <p>The housing to be polished and the trim shall be chrome.</p> <p>The lights will be controlled per the following:</p> <ul style="list-style-type: none"> <li>A switch in the cab, on the switch panel will control the lights.</li> <li>White LEDs will be deactivated when the parking brake is applied.</li> <li>Amber LEDs will be deactivated when the parking brake is released.</li> <li>Amber, blue, green or red LEDs in the inside positions may be load managed when the parking brake is applied.</li> </ul>   |
| 0653937 | Flasher, Headlight Alternating   | <p><b>HEADLIGHT FLASHER</b></p> <p>The high beam headlights will flash alternately between the left and right side.</p> <p>There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.</p> <p>The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p>  |
| 0747228 | Lights, Side Zone Lower, Wln M6**, M6**, M6**, 6Lts                        | <p><b>SIDE ZONE LOWER LIGHTING</b></p> <p>There will be six (6) Whelen®, Model M6**, 4.31" high x 6.75" long x 1.37" deep flashing LED warning lights with chrome trim installed per the following:</p> <ul style="list-style-type: none"> <li>Two (2) lights located, one (1) each side on the bumper extension. The driver's side, side front light to include red warning LEDs and the passenger's side, side front light to include red warning LEDs.</li> <li>Two (2) lights located, one (1) each side of cab rearward of crew cab doors. The driver's side, side middle light to include red warning LEDs and the passenger's side, side middle light to include red warning LEDs.</li> <li>Two (2) lights located, one (1) each side above rear wheels. The driver's side, side rear light to include red warning LEDs and the passenger's side, side rear light to include red warning LEDs.</li> </ul> <p>The warning light lens colors to be the same as the LEDs.</p> <p>There will be a switch in the cab on the switch panel to control the lights.</p>   |
| 0540766 | Lights, Side, Wln M6* LED, Colored Lens, 1st                               | <p><b>SIDE WARNING LIGHTS</b></p> <p>There will be two (2) Whelen, Model M6* LED flashing warning light(s) with bezel(s) provided one (1) each side of the cab in the raised roof portion aft of the crew cab door up high.</p> <p>The color of the lights will be red.</p> <p>All of these lights will include a lens color that is the same as the LED's</p> <p>These lights will be activated with the Side Zone Lower warning lights.</p>   |
| 0564654 | Lights, Rear Zone Lower, Wln M6* LED, Colored Lens, For Tail Light Housing | <p><b>REAR ZONE LOWER LIGHTING</b></p> <p>There will be two (2) Whelen®, Model M6*, LED flashing warning lights will be located at the rear of the apparatus.</p> <ul style="list-style-type: none"> <li>The driver's side rear light to be red</li> <li>The passenger's side rear light to be red</li> </ul> <p>Both lights will include a lens that is the same color as the LED's.</p> <p>There will be a switch located in the cab on the switch panel to control the lights.</p>   |
| 0088745 | Light, Rear Zone Upper, Wln L31HRFN LED Beacon, Red LED                    | <p><b>REAR/SIDE ZONE UPPER WARNING LIGHTS</b></p> <p>There will be two (2) Whelen®, Model L31H*FN, LED warning beacons provided at the rear of the truck, located one (1) each side. There will be a switch located in the cab on the switch panel to control the beacons.</p> <p>The color of the lights will be red LEDs with both domes red.</p>   |

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| 0006551 | Not Required, Lights, Rear Upper Zone Blocking                          |   |
| 0799066 | SP Power Supply, WIn PE215 Traffic Light Controller, Single Strobe Tube | <p><b>POWER SUPPLY, STROBE</b></p> <p>There will be one (1) Whelen®, Model IPS74, four (4) outlet power supply(s) with diagnostics provided on the apparatus.</p> <p>The power supply(s) will be provided in place of the standard Whelen, UPS-64LX, four (4) outlet, 75 watt power supply(s) for the strobe lights.</p> <p>To meet the NFPA requirements, any lights added to this power supply will be load managed or disabled, if clear, when the parking brake is set.</p>   |
| 0791501 | Light, Traffic Directing, WIn TAL65, 36" Long LED, Aerials              | <p><b>TRAFFIC DIRECTING LIGHT</b></p> <p>There will be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.</p> <p>The Whelen, Model TACTL5, control head will be included with this installation.</p> <p>The controller will be energized when the battery switch is on.</p> <p>The auxiliary flash not activated.</p>   |
| 0530074 | Location, Traf Dir Lt, On Top of Body Below Turntable w/Trdplt Box      | This traffic directing light will be mounted on top of the body below the turntable with a treadplate box at the rear of the apparatus.   |
| 0530282 | Location, Traf Dir Lt Controller, Overhead Switch Panel DS Right End    | The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.  |
| 0006646 | Electrical System, 120/240VAC, General Design                           | <p><b>ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT</b></p> <p>The following guidelines will apply to the 120/240 VAC system installation:</p> <p><b>General</b></p> <p>Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles.</p> <p>Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</p> <p>Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.</p> <p><b>Grounding</b></p> <p>Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.</p> <p>An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.</p> <p>The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.</p> <p>In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used.</p> <p>All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.</p> <p><b>Operation</b></p> <p>Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.</p> <p>Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.</p> <p>A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information:</p> <p>Rated voltage(s) and type (ac or dc)</p> <p>Phase</p> <p>Rated frequency</p> <p>Rated amperage</p> <p>Continuous rated watts</p> <p>Power source engine speed</p> <p>Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.</p> <p><b>Overcurrent protection</b></p> <p>The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length. For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).</p> <p>For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).</p> |



### **Wiring Methods**

Fixed wiring systems will be limited to the following:

Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)

or

Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows.

Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping

Separated from fuel lines by a minimum of 6.00" (152 mm) distance

Electrical cord or conduit will be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

### **Wiring Identification**

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

### **Wet Locations**

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground.

Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

### **Dry Locations**

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height.

All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.

### **Listing**

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

### **Electrical System Testing**

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

### **Operational Test per Current NFPA 1901 Standard**

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by an independent third-party certification organization.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard will be applied to the low voltage electrical system during the operational test.

0529594 Generator, Harrison 6kW, 6.0MAS-16R/D-11011/15/1, Hydraulic, Hotshift PTO

### **GENERATOR**

The apparatus will be equipped with a complete AC (alternating current) electrical power system. The generator will be a Harrison Model 6.0MAS-16R/D-11011/15/1, 6,000 watt hydraulic driven unit.

The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.

The hydraulic engagement supply will be operational at any time (no interlocks).

An electric/hydraulic valve will supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

### **Generator Instruments and Controls**

To properly monitor the generator performance a digital meter panel will be furnished and mounted near the circuit breaker panel.

0006645 Location, Hydraulic Generator Above Pump

### **GENERATOR LOCATION**

The generator will be mounted in the in the area over the pump in the center. The flooring in this area will be either reinforced or constructed in such a manner that it will handle the additional weight of the generator.

0016752 Starting Sw, Truck Engine Powered Gen, Cab Sw Pnl

### **GENERATOR START**

There will be a switch provided on the cab instrument panel to engage the generator.

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| 0016757 | Not Required, Remote Start, Generator                                    |  |
| 0016740 | Not Required, Fuel System  |  |
| 0016767 | Not Required, Oil Drain Extension, Generator                             |  |
| 0016771 | Not Required, Routing Exhaust, Generator                                 |  |
| 0036738 | Circuit Breaker Panel, Included With PTO Generator                       | <b>CIRCUIT BREAKER PANEL</b><br>The circuit breaker panel will be located high on the left wall of compartment LS4.  |
| 0076826 | Cup Holder for Telescopic - Pushup - Light Pole                          | <b>CUP HOLDER</b><br>A cup holder will be provided for the Two (2) to securely hold the push-up pole in place while in the lower position.   |
| 0689685 | Light, FRC, 120V, SPA600-K20-603 LED Floodlt, Tripod 1st                 | <b>120 VOLT LIGHTING</b><br>There will be Two (2) Fire Research Spectra, Model SPA600-K20, white 120 volt AC LED tripod flood light(s) with truck mount brackets provided and located (1) each side on Back side of Cab. . A receptacle will be provided near the base of the light.<br>A 15 amp, 120 volt, twist-lock plug with protective boot will be provided.   |
| 0688345 | Reel, Elect Cable, Hannay, ELFCR1622-14-16, (3) Wire, Low Profile        | <b>ELECTRIC CORD REEL</b><br>Furnished with the 120 volt AC electrical system will be a Hannay, Model ELFCR1622-14-16 low profile cord reel. The reel will be provided with a 12-volt electric rewind switch, that is guarded to prevent accidental operation and labeled for its intended use. The switch will be protected with a fuse and installed at a height not to exceed 72 inches above the operators standing position. The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer.<br>A captive roller assembly to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the cord from being wound on the reel.<br>A label will be provided in a readily visible location adjacent to the reel. The label will indicate current rating, current type, phase, voltage and total cable length.<br>A total of two (2) cord reels will be provided (1) each side over pump each side of generator. The cord reel should be configured with three (3) conductors. |
| 0564103 | Cover, Aluminum Treadplate, Removable, Over Cord Reel, w/out Access Door | <b>CORD REEL COVER</b><br>There will be two (2) removable aluminum treadplate cover(s) provided over the cord reel(s) located Over each reel over pump.  |
| 0006790 | Receptacle, 20A 120V 3-Pr 3-Wr TL, L5-20R Wtrprf                         | <b>120 VOLT RECEPTACLE</b><br>There will be three (3), 20 amp 120 volt AC three (3) wire twist lock receptacle(s) with waterproof flip up cover(s) installed one (1) each side of body in the fender area aft of the rear axle and one (1) at the rear to the right of the apparatus. The NEMA configuration for the receptacles will be L5 -20R.<br>The receptacle(s) will be powered from the on board generator.<br>There will be a label installed near the receptacle(s) that state the following:<br>Line Voltage<br>Current Rating (amps)<br>Phase<br>Frequency   |
| 0519934 | Not Required, Brand, Hydraulic Tool System                               |  |
| 0649753 | Not Required, PTO Driven Hydraulic Tool System                           |  |
| 0755095 | Aerial, 107' ASL Tandem, 750/500 Tip, 50 MPH                             | <b>FOUR (4)-SECTION 107 FOOT AERIAL LADDER CONSTRUCTION STANDARDS</b><br>The ladder will be constructed to meet all of the requirements as described in the current NFPA 1901 standards.<br>The aerial device will be a true ladder type device; therefore ladders attached to booms will not be considered.<br>These capabilities will be established in an unsupported configuration.<br>All structural load supporting elements of the aerial device that are made of a ductile material will have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.<br>All structural load supporting elements of the aerial device that are made of non-ductile material will have a design stress of not more than 20% of the minimum ultimate strength of the material,   |

based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current NFPA 1901 standard.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The aerial base pivot bearings will be maintenance free type bearings and require no external lubrication.

The aerial device will be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.

The aerial device will be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

With the aerial device out of the cradle and in the fully extended position at zero degrees elevation, a test load will be applied in a horizontal direction normal to the centerline of the ladder. The turntable will not rotate and the ladder will not deflect beyond what the product specification allows.

All welding of aerial components, including the aerial ladder sections, turntable, pedestal, and outriggers, will be in compliance with the American Welding Society standards. All welding personnel will be certified, as qualified under AWS welding codes.

The aerial device will be capable of operating in conditions of wind up to 50 mph and icing conditions of up to a .25" coating over the aerial structure.

All of the design criteria must be supported by the following test data:

- Strain gage testing of the complete aerial device
- Analysis of deflection data taken while the aerial device was under test load

The following standards for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Material testing that is performed after the mill test will be for verification only and not with the intent of changing the classification
- All welded structural components for the ladder will be traceable to their mill lots.

#### **LADDER CONSTRUCTION**

The ladder is comprised of four (4) sections.

The ladder will have the capability to support a minimum of 750 pounds at the tip in the unsupported configuration, based upon 360 degree rotation, up to full extension and from -10 degrees to +77 degrees.

The ladder (handrails, baserails, trusses, K-braces and rungs) will be constructed of high strength low alloy steel, minimum 100,000 pounds per square inch yield, with full traceability on all structural members.

Each section will be trussed diagonally, vertically and horizontally using welded steel tubing.

All ladder rungs are round and welded to each section utilizing "K" bracing for lateral and torsional rigidity.

The inside width dimensions of the ladder will be:

- Base Section 41.87"
- Lower Mid Section 34.88"
- Upper Mid Section 27.87"
- Fly Section 21.63"

The height of the handrails above the centerline of the rungs will be:

- Base Section 26.28"
- Lower Mid Section 22.68"
- Upper Mid Section 20.06"
- Fly Section 17.32"

The ladder will be designed to provide continuous egress for firefighters and civilians from an elevated position to the ground.

The egress section will be designed to maintain the rated load of the aerial device. It will be bolted on for easy replacement. There will be a tow eye welded on to each side of the egress.

#### **VERTICAL HEIGHT**

The ladder will extend to a minimum height of 107' above the ground at full extension and elevation. The measurement of height will be consistent with NFPA standards.

#### **HORIZONTAL REACH**

The rated horizontal reach will be 100'. The measurement of horizontal reach will be consistent with NFPA standards.

#### **TURNTABLE**

The upper turntable assembly will connect the aerial ladder to the turntable bearing. The steel structure will have a mounting position for the aerial elevation cylinders, ladder connecting pins, and upper turntable operator's position.

The turntable will be a 0.375" thick steel deck, coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces will meet the skid-resistance requirements of the current NFPA 1901 standard.

The turntable handrails will be a minimum 42.00" high and will not increase the overall travel height of the vehicle. The handrails will be constructed from aluminum and have a slip resistant knurled surface. The turntable vertical handrail spacing will be designed with a 44.00" wide x 27.00" high opening to allow for equipment to pass through from the ground to the aerial ladder. The opening will be located at the center, rear of the turntable.

#### **ELEVATION SYSTEM**

Dual 5.50" diameter elevating cylinders will be mounted on the underside of the base section of the ladder, one (1) on each side. One (1) 2.25" diameter stainless steel pin will fasten each cylinder to the ladder and one (1) 2.50" diameter stainless steel pin will fasten each cylinder to the turntable. The pins will have 125,000 psi minimum yield strength and will be secured with 0.50" Grade 8 bolts with castle nut and cotter pin. The bolts are to ensure that the pins do not walk out of the mounting brackets on the turntable and base section.

The elevating cylinders will be mounted utilizing maintenance-free spherical bearings on both ends of the cylinders. The aerial base pivot bearings will be maintenance-free type bearings with no external lubrication required. **The cylinders will function only to elevate the ladder and not as a structural member to stabilize the ladder side movement. The elevating cylinders will be provided with pilot-operated check valves on the barrel and rod side of the piston to**

prevent movement of the ladder in case of a loss of hydraulic pressure. The operation envelope will be 10 degrees below horizontal to 77 degrees above horizontal.

The elevation system will be designed following NFPA standards. The elevation hydraulic cylinders will incorporate cushions on the upper limit of travel.

The lift cylinders will be equipped with integral holding valves located in the cylinder to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves will NOT be located in the transfer tubes.

The elevation system will be controlled by the microprocessor. Linear transducers will measure the extension of the elevation cylinder. The microprocessor will provide the following features:

- Collision avoidance of the elevation system to prevent accidental body damage
- Automatic deceleration when the aerial device is lowered into the cradle
- Automatic deceleration at the end of stroke, in maximum raise and lower positions
- Deceleration of the aerial device at the limits of travel.

#### **EXTENSION/RETRACTION SYSTEM**

A hydraulically powered, extension and retraction system will be provided through dual hydraulic cylinders and wire ropes. Each set will be capable of operating the ladder in the event of a failure, of the other. The extension cylinder rod will be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders will be equipped, with integral holding valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves will NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The extension/retraction system will be controlled by the microprocessor. Linear transducers will measure the ladder extension. The microprocessor will provide the following features:

- Automatic deceleration at the end of stroke, in maximum extend and retract positions
- All sheaves will require lubrication. They will have bronze bushings and grease zerks.

#### **MANUAL OVERRIDE CONTROLS**

Manual override controls will be provided for all aerial and stabilizer functions.

#### **LADDER SLIDE MECHANISM**

UHMW polyethylene wear pads will be used between the telescoping ladder sections, to provide greater bearing surface area for load transfer. Adjustable slide pads will be used to control side play between the ladder sections.

#### **ROTATION SYSTEM**

The aerial will be supplied with a powered rotation system as outlined in NFPA standards. The hydraulic rotation motor will provide continuous rotation under all rated conditions and be supplied with a brake to prevent unintentional rotation. One (1) hydraulically driven, planetary gear box with drive speed reducers will be used to provide infinite and minute rotation control throughout the entire rotational travel. One (1) spring applied, hydraulically released disc type swing brake will be furnished to provide positive braking of the turntable assembly. Provisions will be made for emergency operation of the rotation system should complete loss of normal hydraulic power occur. The hydraulic system will be equipped with pressure relief valves which will limit the rotational torque to a nondestructive power. The gearbox will have a minimum continuous torque rating of 80,000 in. lbs. and a minimum intermittent rating of 160,000 in. lbs. The turntable bearing, ring gear teeth, pinion gear, planetary gearbox, and output shaft will be certified by the manufacturer of the components for the application.

The rotation system will be controlled by the microprocessor. The microprocessor will provide the following features:

- Collision avoidance to prevent accidental body damage
- Prevent the aerial from being rotated into an unstable condition.

#### **ROTATION INTERLOCK**

The microprocessor will be used to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor will allow full and unrestricted use of the aerial, in the 180 degree area, on the side(s) where the stabilizers have been fully deployed. The system will also have a manual override, to comply with NFPA 1901. SYSTEMS THAT PERMIT THE AERIAL TO ROTATE TO THE "SHORT JACK" SIDE, WITHOUT AUTOMATICALLY STOPPING THE ROTATION AND/OR WITHOUT ACTUATION OF THE "MANUAL OVERRIDE", will NOT BE ACCEPTED. SYSTEMS THAT ONLY INCLUDE AN ALARM ARE NOT CONSIDERED AN INTERLOCK AND will NOT BE ACCEPTED.

#### **LADDER CRADLE INTERLOCK SYSTEM**

A ladder cradle interlock system will be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch will be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position..

#### **AERIAL TORQUE BOX/PEDESTAL**

The pedestal assembly will be a welded assembly made of high strength 0.25" plate. The vertical member will be a 0.375" reinforced wall cylinder with a 28.00" outside diameter and will connect the rotation bearing mounting plate to the lower substructure.

The pedestal assembly will be bolted to the chassis frame with 0.88" diameter Grade 8 bolts, and will be utilized to mount the outrigger jacks and reservoir for the aerial hydraulic system.

There will be a 5/8" gap between the torque box and the frame rails to promote drying of the surfaces and reduce the effect of corrosion.

#### **LOAD CAPACITIES**

The following load capacities will be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from

*the tires and axles. Capacities will be based upon full extension and 360 degree rotation. A load chart, visible at the operator's station, will be provided. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension.*

**50 MPH WIND CONDITIONS/WATERWAY DRY**

**Degrees of**

**Elevation**

- 10 to 9
- 10 to 19
- 20 to 29
- 30 to 39
- 40 to 49
- 50 to 59
- 60 to 69
- 70 to 77

**Egress**

- 750
- 750
- 750
- 750
- 750
- 750
- 750

**Fly**

- 
- 
- 
- 
- 

- 250
- 500
- 750

**Upper Mid**

- 
- 
- 

- 250
- 500
- 1000
- 1000

**Lower Mid**

- 
- 
- 

- 500
- 750
- 1000
- 1000

**Base**

- 
- 
- 

- 500
- 500
- 1000
- 1000
- 1000

**50 MPH WIND CONDITIONS/WATERWAY CHARGED**

**Degrees of**

**Elevation**

- 10 to 9
- 10 to 19
- 20 to 29
- 30 to 39
- 40 to 49
- 50 to 59
- 60 to 69
- 70 to 77

**Egress**

- 500
- 500
- 500
- 500
- 500
- 500
- 500

**Fly**

- 
- 
- 
- 
- 

- 250
- 500
- 500

**Upper Mid**

-

-

-

-

**250**

**500**

**750**

**1000**

**Lower Mid**

-

-

-

**250**

**500**

**750**

**1000**

**1000**

**Base**

-

-

**250**

**500**

**750**

**1000**

**1000**

**1000**

**Reduced loads at the tip can be redistributed in 250 lb. increments to the fly, mid, or base sections as needed.**

**The tip capacity will be reduced to zero when flowing water with the nozzle above the waterway centerline.**

**Side to side monitor travel will be reduced with a 50MPH wind rating on the device.**

**BOOM SUPPORT**

**A heavy-duty boom support will be provided for support of the ladder in the travel position. On the base section of the ladder, a stainless steel scuffplate will be provided where the ladder comes into contact with the boom support.**

|         |   |   |
|---------|---|---|
| 000042  | Boom Support, Rear of the Chassis Cab                         | The boom support will be located just to the rear of the chassis cab.   |
| 0601990 | Light, Boom Support, Peterson 393C, Incandescent              | <b>AERIAL BOOM SUPPORT LIGHT</b><br>There will be one (1) Peterson, Model 393C, white incandescent light mounted on the boom support cradle. This light will be activated by the aerial master switch.  |
| 0799560 | Boom Support Compartment, Not Required                        |   |
| 0680821 | Boom Panel, Pair  | <b>AERIAL BOOM PANEL</b><br>There will be one boom panel provided on each side of the aerial ladder base section. The boom panel will be painted #10 white.<br>The boom panels will be designed so no mounting bolts are in the face of the panel. This will keep the lettering surface free of holes.  |
| 0526885 | Indicator, Extension, Inside and Outside Handrails, Every 10' | <b>EXTENSION INDICATOR</b><br>Extension markings and corresponding numerical indicators will be provided along each inside and outside top rail of the base section of the aerial every 10'. They will indicate various positions of extension up to full. Markings and indicators will be clearly visible to the console operator. To aid in visibility during hours of darkness, the markings and numerical indicators will be red reflective material.   |
| 0723719 | Steps, Folding, Four, Aerial Device, Trident                  | <b>FOLDING STEPS</b><br>One (1) set of folding steps will be provided at the tip of the ladder. An additional set of folding steps will be provided at the base of the fly section. The steps will be bright finished with a black tread coating on the stepping surface. Each step will have no integrated light.  |
| 0688232 | Rung Covers, Aerial Device                                    | <b>AERIAL DEVICE RUNG COVERS</b><br>Each rung will be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.<br>The rung covers will be glued to each rung, and will be easily replaceable should the rung cover become damaged.<br>The center portion of each rung cover will be black and the outside 2.00" edge at each side will be photoluminescent to assist in providing a light source for each rung during low light conditions. Under no circumstances will the rung covers be fastened to the rungs using screws or rivets. The rung covers will have a 10-year, limited warranty. |

|         |  |  |
|---------|--|--|
| 0728980 | Box, Stokes, w/Cover, Base Section, In Place of Boom Panel, w/Door Open Sw | <p><b>STOKES STORAGE BOX</b></p> <p>There will be one (1) aluminum storage box(es) provided at the base section of the aerial ladder on the left side of the aerial device while viewed from the turntable. The box(es) will be painted to match the aerial device. The box(es) will be located in place of the aerial boom panel and have a hinged cover with pair of butterfly latches to secure the stokes basket. The cover will have the same finish as the box. The cover will be tied in to the open door indicator circuitry when in the open position. The box(es) will have no louvers.</p> <p>The size of the stokes basket will be 86.00" long x 24.00" wide x 8.00" high.</p> <p>The maximum capacity of each box will be 75 lb.</p>  |
| 0786841 | Brackets Only, Roof/Fresno Ladder, Base Section, Inboard of Boom Panel     | <p><b>LADDER STORAGE MOUNTING BRACKETS</b></p> <p>Mounting will be provided on the right side of the aerial device while viewed from the turntable for storage of one (1) roof ladder(s). The bracket(s) will be located inboard of the boom panel at the base section. The bracket(s) will hold the boom panel as close to the base section as possible and include straps to secure the ladder.</p> <p>The mounting brackets will accommodate a 14' Duo-Safety 775-A-DR roof ladder as determined by the type of aerial device and the available space.</p>  |
| 0623645 | Aerial Stability Test, Max Tip Options                                     | <p><b>STABILITY TEST</b></p> <p>An aerial stability test will be run on this apparatus using the maximum weight allowance for tip options.</p>   |
| 0601972 | Lights, Turntable Walkway, P25, LED  | <p><b>LIGHTS FOR TURNTABLE WALKWAY</b></p> <p>There will be white LED lights provided at the aerial turntable. The lights will be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights will be activated by the aerial master switch.</p>   |
| 0601949 | Light, Turntable Console, TecNiq T-10, LED Strip Light                     | <p><b>TURNTABLE CONSOLE LIGHTING</b></p> <p>There will be one (1), TecNiq Model T10, white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights will be activated by the aerial master switch.</p>   |
| 0682164 | Cover, Around Aerial Rotation Bearing                                      | <p><b>ROTATION BEARING COVER</b></p> <p>A cover will be fitted over the aerial rotation bearing and drive pinion gear(s). The cover will be aluminum treadplate and attached to the underside of the turntable deck.</p>   |
| 0793038 | Control Stations, ASL Tandem Axle, MUX, Color Display                      | <p><b>INFORMATION CENTER</b></p> <p>There will be an information center provided. The information center will operate in temperatures from -40 to 185 degrees Fahrenheit. The information center will employ a Linux operating system and a 7.00" (diagonal measurement) LCD display. The LCD will have a minimum 400nits rated, color display. The LCD will be sunlight readable. The LCD display will be encased in an ABS, black plastic housing with a gray decal. There will be five (5), weather-resistant user interface switches provided. The LCD display can be changed to an available foreign language.</p> <p><b>OPERATION</b></p> <p>The information center will be designed for easy operation in everyday use. There will be a page button to cycle from one screen to the next screen in a rotating fashion. A video button will allow an NTSC signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center will return to the vehicle information screens. There will be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels will be specific to the information being viewed.</p> <p><b>GENERAL SCREEN DESIGN</b></p> <p>Where possible, background colors will be used to provide vehicle information <i>At A Glance</i>. If the information provided on a screen is within acceptable limits, a green background color will be used. If the information provided on a screen is not within acceptable limits, an amber background color will indicate a caution condition and a red background color will indicate a warning condition.</p> <p>Every screen in the information center will include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time will be synchronized between all Command Zone color displays located on the vehicle. The Alert Center will display text messages for audible alarms. The text messages will identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message for each alarm will cycle every second until the problems have been resolved. The background for the Alert Center will change to indicate the severity of the warning message. Amber will indicate a caution condition and red will indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color will be shown for all Alert Center messages.</p> <p>A label will be provided for each button. The label will indicate the function for each active button for each screen. If the button is not utilized on specific screens, it will have a button label with no text.</p> <p>Symbols will accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.</p> <p><b>PAGE SCREENS</b></p> <p>The Information center will include the following pages:</p> <p>The Aerial Main and Load Chart page will indicate the following information:</p> <ul style="list-style-type: none"> <li>- Rungs Aligned and Rungs Not Aligned will be indicated with text and respective green or red colored ladder symbols.</li> <li>- Ladder Elevation will be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder.</li> <li>- Water Flow (if applicable) will be indicated via a water nozzle symbol and text indicating flow /</li> </ul> |

time.

- Breathing Air Levels will be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graphs shown inside the bottle will indicate oxygen levels above 20%. A red bar graph will indicate oxygen levels at or below 20%. When oxygen levels are at or below 10% the red bar graph will flash.
- The Aerial Load Chart will indicate the load limit on each section of the ladder based on actual ladder position and water flow (if applicable).
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Aerial Reach and Hydraulic Systems page will indicate the following information:

- Aerial Hydraulic Oil Temperature will be indicated with symbol and text. At a glance features will be utilized.
- Aerial Hydraulic Oil Pressure will be indicated with a symbol and text. At a glance features will be utilized.
- The following calculations will be indicated on a representative vehicle symbol:
  - Aerial Device Extension length.
  - Aerial Device Height indicating the height of the aerial device tip from the ground.
  - Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable.
  - Aerial Device Angle indicating the angle from the vehicle which the device is at.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Level Vehicle page will indicate the following information:

- The grade of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol will tilt dependent on the vehicle grade.
- The slope of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol will tilt dependent on the vehicle slope.
- Outriggers status will be indicated via a colored symbol for each outrigger present. Each outrigger status will be defined as one of the following:
  - Outrigger stowed indicated with a silver pan located close to the vehicle
  - Outrigger fully extended indicated with a fully deployed green outrigger
  - Outrigger short-jacked indicated by a yellow outrigger partially deployed
  - Outrigger not set indicated by a red outrigger that is not set on the ground
- A text box located on the vehicle symbol will be utilized to identify the overall status of the outrigger leveling system. The following status will be indicated in the text box:
  - Deployed status will indicate all outriggers are properly set on the ground at full extension
  - Shortjacked status will indicate one or more outriggers are set on the ground but not fully extended.
  - Not Set status will indicate one or more outriggers is not properly set on the ground.
  - Stowed status will indicate all outriggers are stowed for vehicle travel.
- A bedding assist alert will indicate that the aerial device is being aligned by the Command Zone system as the operator lowers the aerial device into the cradle with the joystick.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

#### **MENU SCREENS**

The following screens will be available through the Menu button:

The View System Information screen will display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

The Set Display Brightness screen will allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen will allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that will be active at vehicle power-up.

The Set Date and Time screen has a 12- or 24-hour format, and allows setting of the time and date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and it's respective inputs and outputs. Viewable data will include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.

Button functions and button labels may change with each screen.

#### **LOWER CONTROL STATION**

A lower control station will be located at the rear of the apparatus in an easily accessible area.

The controls and indication labels will be illuminated for nighttime operation. The following items will be furnished at the lower control station and will be clearly identified and conveniently located for ease of operation and viewing:

- Level assist switch
- Override switch to override microprocessor
- Emergency power unit switch

#### **TURNTABLE CONTROL STATION**

There will be one (1) device control station located on the left side of the turntable so the operator may easily observe the ladder tip while operating the controls. All elevation, extension and rotation controls will operate from this location. The controls will permit the operator to regulate the speed of the aerial functions, within the safe limits, as determined by the manufacturer and NFPA standards. Each control will be equipped, with a positive lock to hold the control in a neutral position, preventing accidental activation. In addition to the neutral lock, a console cover will be provided at the turntable control station. The controls will be so designed to allow the turntable control station to immediately override the tip controls, if equipped, even if the ladder is being operated by the tip controls.



The following items will also be provided at the turntable control station, clearly identified, lighted for nighttime operation and conveniently located for ease of operation and viewing:

- Intercom controls
- Tip tracking light switch
- Emergency stop switch
- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed

**HIGH IDLE**

The high idle will be controlled by the microprocessor. The microprocessor will automatically adjust the engine rpm to compensate for the amount of load placed upon the system. The system will include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

Stabilizers, Ascendant Tandem, Rear Mount Steel, 16' Spread, 18" Pen, MUX

### **STABILIZERS**

The vehicle will come equipped with a stabilization system consisting of four (4) hydraulically operated stabilizers. The front two (2) will be out and down style, the rear two (2) will be down only. This system will meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.

The stabilizer/leveling jacks will have a maximum spread of 16' measured from the centerline of the jack footpads when the beams are fully extended. The beams will be 6.88" wide x 9.00" high with 3/4" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders will have pilot-operated check valves with thermal relief designed to insure that the beams will not drift out of the stowed position during travel. Wear pads will guide the stabilizers.

The horizontal extension cylinders will be totally enclosed within the beams and will incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer hydraulic hoses will remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders will be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted and extended positions. The stabilizer extension hydraulic cylinders will have the following dimensions: 2.25" bore, 1.38" rod, and 39.25" stroke.

The vertical jack cylinders will be capable of 18.00" ground penetration. The cylinders will be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves will be located in the cylinder base, NOT in the transfer tube. Vertical jack cylinder rods will be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders will have the following dimensions: 4.25" bore, 3.00" rod, and 28.88" stroke.

Each stabilizer jack will have a pan that will be a maximum of 14.00" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This pan will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back 90 degrees for added strength.

### **STABILIZER PADS**

The stabilizer footpad will be 12.00" in diameter. The footpad will be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad will have the ability to pivot 20 degrees from horizontal in any direction to allow setup on uneven terrain.

### **AUXILIARY STABILIZER PADS**

An auxiliary ground pad will be supplied for each stabilizer to provide additional load distribution on soft surfaces. The pads will be 31" x 26" and made from lightweight composite material. The ground pressure will not exceed 75 pounds per square inch when the ground pads are used and the apparatus is fully loaded and the aerial device is carrying its rated capacity in any position. The pads will be stored in a double stacked configuration, two (2) behind each rear tandem axle in a single bracket.

### **STABILIZER CONTROLS**

A portable stabilizer control box will be provided. The control box will be weatherproof and oil resistant. Each function and indicator light will be labeled on a metal photo panel. The control box can be taken as far away as 15' from the vehicle with an extension cable.

The stabilizer control box will include the following:

- One (1) green power indicator light for stabilizer control that will be illuminated when the aerial master and "PTO" switches in the cab are activated.
  - Four (4) electric toggle switches for stabilizers: each toggle switch will control the extend/retract (front only) and raise/lower of its respective stabilizer to allow vehicle set up in restricted areas and/or on uneven surfaces.
  - Auto leveling assist switch: The outrigger control system will incorporate a computerized self leveling system in addition to the standard outrigger controls. The operator will have the option to manually or automatically level the truck. The computerized system will ensure full outrigger extension, proper jack penetration, and will level the vehicle within 1/2 a degree of level for safe operation of the aerial device.
  - One (1) electric toggle switch for the engaging the emergency power unit.
  - One (1) red "stabilizer not stowed" indicator light: this light will illuminate when the stabilizers are not in the fully stowed position.
  - Two (2) fully extended beams green indicator lights: these lights will be illuminated when each of the respective stabilizer beams are fully extended.
  - Four (4) firm on ground green indicator lights: each light will be illuminated when its respective stabilizer shoe is in the load supporting condition.
- Each toggle switch will activate the engine fast idle automatically.  
Manual override will be supplied for each stabilizer control valve.  
A "Stabilizers Not Stowed" indicator will be provided in the driver's compartment. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system will also be wired to the "Do Not Move Indicator Light", which will flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.

### **CRADLE INTERLOCK SYSTEM**

A cradle interlock system will be provided, to prevent the lifting of the aerial from the nested position, until the operator has positioned all the stabilizers in a load supporting configuration. A switch will be installed at the cradle, to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

Stabilizer Pan and Trim Material

### **STABILIZER PAN AND TRIM MATERIAL**

The aerial stabilizer pans will be polished stainless steel and the aerial stabilizer trim will be polished stainless steel .

Door, Stabilizer Control Box, Aerial MUX, Hinged Outboard, Smooth Aluminum

### **STABILIZER CONTROL BOX ALUMINUM DOOR**

A vertically hinged smooth aluminum door will be provided over the stabilizer control box. The door will be hinged outboard.

|         |   |  |
|---------|---|--|
| 0540495 | Pads, Stabilizer, Modified to Slide On  | <p><b>STABILIZER PADS, MODIFIED</b></p> <p>The two (2) auxiliary stabilizer pads will be modified so they can be installed on the bottom of the stabilizer. The auxiliary stabilizer pad holders on the truck will also be modified.</p>   |
| 0793039 | Hydraulic System, Ascendant Tandem Axle | <p><b>HYDRAULIC SYSTEM</b></p> <p>All hose assemblies will be assembled and crimped by the hose manufacturers certified technician.</p> <p>All manufacturing employees responsible for the installation of hydraulic components will be properly trained. Training will include: proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.</p> <p>Hoses used in the aerial hydraulic system will be of a premium quality hose with a high abrasion resistant cover. All pressure hoses will have a working pressure of 4000 psi and a burst pressure rating of 16,000 psi.</p> <p>All hydraulic fittings and tubing will be plated to minimize corrosion.</p> <p>The fitting will use an O-ring seal where possible to minimize hydraulic leaks.</p> <p>An interlock will be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard.</p> <p>The system will meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.</p> <p>All hydraulic components that are non-sealing whose failure could result in the movement of the aerial will comply with current NFPA 1901 standards and have burst strength of 4:1.</p> <p>Dynamic sealing components whose failure could cause aerial movement will have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.</p> <p>All hydraulic hoses, tubes, and connections will have a minimum burst strength of 4:1 per the current NFPA 1901 standard.</p> <p>A chassis mounted positive displacement piston pump for consistent pressure and rapid responses will supply hydraulic power for all aerial operations. The positive displacement pump will provide 3,150psi. The hydraulic pump will be solely dedicated to aerial operations.</p> <p>Each aerial will be evaluated as to the region and climate where it will be used to determine the optimum viscosity and proper oil grade. Oil viscosity will be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample will be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.</p> <p>The aerial hydraulic system will have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer will receive a certificate of actual cleanliness test results and an explanation of the rating system.</p> <p>Each aerial will include an oil sample port, identified with a yellow dust cap and a label, for subsequent customer testing.</p> <p>Ball valves will be provided in the hydraulic suction lines to permit component servicing without draining the oil reservoir.</p> <p>The aerial will incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.</p> <p>Hydraulic power to the ladder will be transferred from the pedestal by a hydraulic swivel.</p> <p>The system hydraulic pressure will be displayed on the turntable display.</p> <p>The hydraulic system will be additionally protected from excessive pressure by a secondary pressure relief valve set at 3,150 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief will prevent system damage.</p> <p><b>HYDRAULIC CYLINDERS</b></p> <p>All cylinders used on the aerial device will be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.</p> <p>Each cylinder will include integral safety holding cartridges.</p> <p>Each cylinder will be designed to a minimum safety factor of 4:1 to failure.</p> <p>All safety holding cartridges will be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.</p> <p><b>POWER TAKEOFF/HYDRAULIC PUMP</b></p> <p>The apparatus will be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump will meet all the requirements for the aerial unit operations.</p> <p>An amber indicator light will be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.</p> <p>An interlock will be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.</p> <p>The hydraulic system will be supplied by a variable displacement load and pressure compensating piston pump. The pump will meet the demands of all three simultaneous aerial functions. The pump will provide proper flow for single aerial function with the engine at idle speed. A switch will be provided on the control console to increase the engine speed for multiple function operation.</p> <p><b>EMERGENCY PUMP</b></p> <p>The hydraulic system will be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.</p> <p>The aerial will be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump will be capable of running for 30 minutes for limited aerial functions to stow the unit in case of a main pump or truck system failure. A momentary switch will be located at the stabilizer and aerial control locations to activate the emergency pump.</p> <p><b>AERIAL CONTROL VALVE</b></p> <p>The aerial hydraulic control valve will be designed with special spool flows, limiting the oil flow for the designed function speed. The valve will be electrically controlled and be located in the control console with the handles oriented downward for manual operation. The activation handles will be spaced a minimum of 3.50" for ease of operation. The valve spools will be designed to bleed off downstream pressure, in the neutral position and allow proper sealing of any cylinder holding cartridge.</p> <p><b>OIL RESERVOIR</b></p> <p>The oil reservoir will have a minimum capacity of 38 gallons. The oil fill location will be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. The fill will have a desiccant breather filter with a water capacity of 4 fluid ounces</p> |

and a 5 micron rating. A drain hose will be included and will terminate with a quarter turn ball valve.

Two suction ports will be provided, one for the main hydraulic pump and one for the emergency pump. The main suction will be slightly elevated off the bottom of the reservoir and include a 100 mesh suction strainer. The emergency suction port will be closer to the bottom of the reservoir to provide some reserve oil for emergency operation.

A six (6) disc type magnetic drain will also be provided to collect any ferrous contaminants.

A float type sending unit in the reservoir will provide an indication of oil level on an electronic display. A temperature sending unit in the reservoir will provide indication of the oil temperature on an electronic display.

The hydraulic oil reservoir will be labeled per the current edition of NFPA 1901 standard.

#### **RETURN FILTER**

The low pressure oil return filter will be integrated with the hydraulic manifold and designed to prevent oil loss during filter change. A 50 psi bypass will be included to protect the element and hydraulic system during lower than normal operating temperatures. The system will incorporate the following filter to provide dependable service:

return filter: beta 200 at 6 micron

0793037

Swivels, D-Series w/Encoder, ASL-Tandem/Tiller, MUX (28 Collector Rings)

#### **HYDRAULIC SWIVEL**

The aerial ladder will be equipped with a three (3) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel will allow for 360 degree continuous rotation of the aerial.

#### **ELECTRIC SWIVEL**

The ladder will be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 28 collector rings will be provided that are capable of supplying 30 amp continuous service. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone will be used.

#### **12-BIT ABSOLUTE ENCODER**

The aerial ladder will be equipped with a 12-Bit Absolute Encoder which provides 4096 counts per shaft turn for position and direction reference.

The 12-Bit Absolute Encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation.

If the power is interrupted for any reason, the 12-Bit Absolute Encoder will allow power to be returned to the system without having to re-zero the settings.

The 12-Bit Absolute Encoder will be an integral part of a micro-processor based control system.

**ELECTRICAL SYSTEM**

The 107' heavy duty ladder shall utilize a microprocessor-based control system. The system shall consist of the following components:

A tethered stabilizer control shall be provided. The tethered control shall be weatherproof and oil resistant. A Super Bright LED indicator light shall be labeled on a metal photo panel for each function. The electrical connection at the tethered control shall be permanently attached by a strained relieved coil cord that shall allow the operator to move 14ft away from the electrical connection for operation.

**Remote Stabilizer Controls**

Weatherproof and oil resistant

One (1) green "power" indicator light

One (1) red "stabilizer not stowed" indicator light

One (1) electric toggle switch for auto level assist

One (1) electric toggle switch for the emergency power unit

One (1) electric toggle switch for each stabilizer to control:

Extend/retract function (front only)

Raise/lower function

One (1) green "stabilizer fully extended" indicator light for each front stabilizer

One (1) green "firm on ground" indicator light for each stabilizer

**Control System Modules**

Each of the control system modules shall be configured as follows:

Sealed to a NEMA 4 rating

Operating range from -40 degrees F to 185 degrees F (-40 degrees C to 85 degrees C)

Communicate using J1939 data link

Two (2) diagnostic LED light

One (1) green light that illuminates when module has power (B+) and ground

One (1) red light that flashes to indicate the module is capable of communicating via the data link

Ground matrix identification system

The following control system modules shall be used:

**Control Module**

Main controller for the system

USB connection allows for computer diagnostics

**Power Module**

Built-in fault sensing

Eight (8) digital outputs

Pulse width modulating (PWM) capable

10A continuous per output

Circuit protection based on actual current draw (not affected by heat)

**Constant Current Module**

Built-in fault sensing

Three (3) analog inputs

Eight (8) digital outputs

Pulse width modulating (PWM) capable

3A continuous per output

Circuit protection based on actual current draw (not affected by heat)

**Closed Loop System****Input Module**

16 software selectable (digital or analog) inputs

**Output Module**

16 digital outputs

**Input/Output Module**

Eight (8) software selectable (digital or analog) inputs

Eight (8) digital outputs

Lights, WIn MPP\*\*S Micro LED, Trk & Tip, 6lts (PAL/HAL)

**TIP AND TRACKING LIGHTS**

There will be six (6) Whelen® Model MPP\*\*S, 4,100 lumens 12 volt DC LED lights with furnished with adjustable mounts and a switch on the light.

One (1) will be mounted on the driver's side of the base section of the ladder

One (1) will be mounted on the passenger's side of the base section of the ladder

One (1) will be mounted high on the driver's side tip of aerial

One (1) will be mounted high on the passenger's side tip of aerial

One (1) will be mounted low on the driver's side tip of the aerial

One (1) will be mounted low on the passenger's side tip of the aerial

The painted parts of this light assembly to be white.

Power to the lights will be controlled by switch(es) located at platform/tip and turntable.

Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid, Fly

**LIGHTING ON AERIAL LADDER**

There will be TecNiq, Model D02 LED rung lighting provided on both sides of the aerial ladder base, lower and upper mid, and fly sections. The lighting will be located adjacent to the ladder rungs along the lower rail of the ladder sections and will run the length of the ladder section.

The color of the sections will be:

The base section of the ladder to be blue.

The lower mid section of the ladder to be blue.

The upper mid section of the ladder to be blue.

The fly section of the ladder to be blue.

The LED rung lighting will be activated when a switch at the turntable operator's panel is activated through the aerial master and a switch at the turntable operator's panel is activated through the master battery switch.

The lights may be load managed when the parking brake is applied.

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| 0540746 | Lights, Stabilizer Warn (2) Sets, Wln M6* LED, Colored Lens                         | <b>STABILIZER WARNING LIGHTS</b><br>There will be four (4) Whelen®, Model M6*, LED flashing warning lights with Whelen, Model M6FC, chrome flanges installed, one (1) on each stabilizer cover panel.<br>The front stabilizer pan lights will be red LED with a lens color the same as the LEDs<br>The rear stabilizer pan lights will be red LED with a lens color the same as the LEDs<br>These warning lights will be activated by the same switch as the side warning lights.  |
| 0068703 | Lights, Grote Supernova LED, Stabilizer Beam, (1) Set                               | <b>STABILIZER BEAM WARNING LIGHTS</b><br>Two (2) 4.00" diameter red LED flashing lights will be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward. The lights will be Grote Supernova 40 series LED lights. The lights will be recessed in the horizontal beam of the stabilizer. These warning lights will be activated with the aerial master switch.   |
| 0601977 | Lights, Stabilizer Scene, (2) sets, Truck-Lite 40227C, Incandescent                 | <b>STABILIZER SCENE LIGHTS</b><br>There will be one (1) Truck-Lite, Model 40227C 4.00" incandescent, scene light installed under each stabilizer beam to illuminate the surrounding area. A total of four (4) lights will be installed. These lights will be activated by the aerial master switch.  |
| 0006929 | Not Required, 120v To Tip   |  |
| 0737181 | Intercom, 2-Way Fire Research ICA910 Hands Free                                     | <b>2-WAY AERIAL COMMUNICATION SYSTEM</b><br>There will be a Fire Research model ICA910 two-way intercom system provided. The control module with an LED volume display and push-button volume control will be located on the turntable operator console.<br>A hands free module will be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.<br>Each intercom unit will be weatherproof.  |
| 0540895 | Not Required, Breathing Air to Tip, Aerial Ladder                                   |  |
| 0024742 | Not Required, Mask, Breathing Air To Tip  |  |
| 0126600 | Raised Pedestal, 3.00", Rear Mount Aerials, AXT, Velocity, Impel, Enf               | <b>RAISED AERIAL PEDESTAL</b><br>The aerial pedestal will be raised to accommodate the height of the cab.  |
| 0565615 | LyfePulley, Rescue System   | <b>RESCUE LIFTING SYSTEM</b><br>A rescue lifting attachment will be provided. The lifting attachment will mount to the aerial egress and will consist of a pair of nylatron pulleys mounted to a stainless steel shaft. The pulleys will be adjustable from side to side and will have a total lifting capacity of 500lb, regardless of whether one (1) or both pulleys are being utilized.  |
| 0604457 | Lifting Eye Assembly, Rope Rescue Attachment, ASL                                   | <b>LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT</b><br>A lifting eye assembly will be provided that is designed to evenly distribute load at the tip of the aerial. The lift eye assembly is retained by two (2) locking pins, one (1) at each end outboard side of the egress. Leveling is maintained by the lifting eye assembly rotating within the egress mounting. The lifting eye assembly rating will match the capacity rating of the aerial device.  |
| 0645472 | Rope Tie Bar At Base Section, for Lyfe Pulley, Painted Box, Ascendant, 105', Tiller | <b>ROPE TIE BAR AT BASE SECTION, RESCUE LIFTING SYSTEM</b><br>A removable bracket will be supplied at the rear of the base section, attached between the left hand and right hand rear hand rails. The bracket will provide Lyfe Pulley rope tie off and/or guide points spaced 5.75" apart, centered between the rear hand rails. The bracket will be designed to be easily removable and not interfere with a fully retracted ladder assembly when attached to the base section. A storage box for the bracket will be provided on the outside rear of the base section. The storage box and bracket will be painted to match the aerial device. |
| 0791128 | Hitch Receiver, 10,000 lb, LS/RS, Under Body Sides, Ascendant TA, PAP/PAL           | <b>HITCH, WINCH MOUNT</b><br>A hitch receiver will be supplied at the left and right side of the vehicle aft of the rear wheels. The hitch will not interfere with the angle of departure and will be tied directly to the frame rails. The hitch will be capable of up to a 10,000 lb direct pull. Receiver plugs will be provided for the receiver when it is not in use.  |
| 0530826 | Turntable Access, ManSaver Bars, Yellow   | <b>AERIAL TURNTABLE MANSAYER™ BARS</b><br>ManSaver™ bars will be installed at the aerial turntable.  |

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| 0624672 | Waterway, High Flow, 1500 GPM, ASL                                      | <b>WATER SYSTEM</b>   |
|         |   | <p>A waterway system will be provided consisting of the following components and features:<br/> A 5.00" pipe will be connected to the water supply on one end and to a 5.00" internal diameter water swivel at the rotation point of the turntable. The water swivel will permit 360 degree continuous rotation of the aerial device.<br/> The 5.00" waterway swivel is to be routed through the rotation point up to the heel pin swivel. The heel pin swivel will allow the water to flow to the ladder pipe while elevating the aerial ladder from -10 degrees to 77 degrees. The heel pivot pin is not integral with the waterway swivel at any point. The design of the waterway will allow complete servicing of the waterway swivel without disturbing the heel pivot pin.<br/> The integral telescopic water system will consist of a 4.50" diameter tube in the base section, a 4.00" diameter tube in the inner mid-section, a 3.50" diameter tube in the outer mid-section, and a 3.00" diameter tube in the fly section. The telescopic waterway will be constructed of anodized aluminum pipe.<br/> The aerial will be capable of discharging up to 1000 gpm at 100 psi parallel to the ladder and 90 degrees to each side of center while maintaining the rated tip load.<br/> The aerial will be capable of discharging between 1001 and up to 1500 gallons per minute at 100 psi parallel to the ladder and 40 degrees to each side of center while maintaining the rated tip load.<br/> The master stream will be capable of flow up to 30 degrees above horizontal.<br/> An adjustable pressure relief valve will be furnished to protect the aerial waterway from a pressure surge.<br/> A 1.50" drain valve will be located at the lowest point of the waterway system.</p> |
|         |   | <b>WATERWAY SEALS</b>   |
|         |   | <p>The waterway seals will be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals will be internally lubricated.<br/> The waterway seals will have automatic centering guides constructed of synthetic thermalpolymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.</p>  |
| 0632855 | Monitor, Akron 3480 StreamMaster II Electric w/Extended Vertical Travel | <b>AERIAL MONITOR</b>   |
|         |   | <p>An Akron Model 3480 monitor with stow and deploy will be provided at the tip with a Akron 1500 gpm Model 5178. This monitor will allow for an additional 30 degrees of travel above horizontal at the aerial tip.<br/> The monitor's functions will be controlled electrically from two (2) separate locations. One (1) control will be located at the control console and the other at the ladder tip.<br/> There will be a courtesy light at the tip of the aerial to illuminate the controls.<br/> If the aerial has a quick-lock waterway, a limit switch will be provided to disable the extended vertical travel when the monitor is locked to the lower ladder section.</p>   |
| 0010758 | Flow Meter, Waterway, PAL, 110' Ascendant, MUX                          | <b>AERIAL WATERWAY FLOW METER</b>   |
|         |   | <p>Waterway flow, including total water flowed, will be monitored by the microprocessor. An LCD display will be located at the turntable control station.</p>   |
| 0004836 | Inlet, 5.00" at Rear w/ Pump, Ascendant Tandem, PAP, PAL                | <b>REAR INLET</b>   |
|         |   | <p>A 5.00" NST inlet to the aerial waterway will be provided at the rear of the apparatus. It will be furnished with a 5.00" chrome plated adapter and a 5.00" chrome plated, long handle cap.</p>  |
| 0673128 | Quick-Lock Waterway Locking System, 100' HDL, 105' HDL, ASL             | <b>WATERWAY LOCKING SYSTEM</b>  |
|         |   | <p>The aerial ladder waterway monitor will be capable of being positioned at either the fly section or at the next lower section of the ladder.<br/> The monitor location will be changeable by the use of a single handle, located at the side of the ladder.<br/> The handle, attached to a cam bracket, will simply be moved forward to lock the monitor at the fly section and back to lock it to the previous section.<br/> There will be no pins to remove and reinstall.<br/> The monitor will be operational at all times, regardless of its position, without connecting or disconnecting electrical lines.</p>  |
| 0772264 | SP Adapter, Aerial Inlet, 5" FNST x 4.5" MNST w/Cap                     | <b>AERIAL INLET ADAPTER</b>   |
|         |   | <p>There will be one (1) 5.00" FNST x 4.50" MNST adapter with blind cap provided on the aerial inlet.</p>   |
| 0737177 | SP Monitor Auto Stow, Forward, Aerial                                   | <b>MONITOR AUTO STOW</b>  |
|         |   | <p>The monitor will be set to auto stow facing forward.</p>   |
| 0795159 | SP Label, Pinnable Waterway Lock, Rescue/Fire                           | <b>QUICK-LOCK WATER WAY LOCK LABELING</b>   |
|         |   | <p>The Quick-Lock waterway locking mechanism will be labeled with a 1.50" high x 8.63" long white back ground black text that states "Rescue Fire". The labels will be installed on the side and on the top of the pinnable waterway release lever mounting bracket.</p>  |

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| 0047897 | Tools, Aerial  | <p><b>TOOLS</b></p> <p>The following tools will be provided for retorquing of all specified bolts as recommended by the manufacturer:</p> <p>Torque Wrench<br/>All Required Extensions, Sockets and Adapters<br/>4-to-1 Multiplier</p>   |
| 0559494 | Manuals and Training, 3 Consecutive Days, Ascendant Ladder, PAL              | <p><b>MANUALS</b></p> <p>Two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device will be provided with the apparatus at time of pick-up.</p> <p><b>INITIAL INSTRUCTION</b></p> <p>On initial delivery of the fire apparatus, the contractor will supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of three (3) consecutive days.</p>  |
| 0007150 | Bag of Nuts and Bolts  | <p><b>LOOSE EQUIPMENT</b></p> <p>The following equipment will be furnished with the completed unit:</p> <p>One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.</p>   |
| 0602497 | NFPA Required Loose Equipment, Quint, NFPA 2016, Provided by Fire Department | <p><b>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</b></p> <p>The following loose equipment as outlined in NFPA 1901, 2016 edition, section 9.9.3 and 9.9.4 will be provided by the fire department.</p> <p>800 ft (240 m) of 2.50" (65 mm) or larger fire hose, in any combination.<br/>400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose, in any combination.<br/>One (1) handline nozzle, 200 gpm (750 L/min) minimum.<br/>Two (2) handline nozzles, 95 gpm (360 L/min) minimum.<br/>One (1) playpipe with shutoff and 1.00" (25 mm), 1.125" (29 mm), and 1.25" (32 mm) tips.<br/>One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.<br/>One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).<br/>One (1) first aid kit.<br/>Four (4) salvage covers, each a minimum size of 12 ft x 14 ft (3.6 m x 5.5 m).<br/>Four (4) combination spanner wrenches.<br/>Two (2) hydrant wrenches.<br/>One (1) double female 2.50" (65 mm) adapter with National Hose threads.<br/>One (1) double male 2.50" (65 mm) adapter with National Hose threads.<br/>One (1) rubber mallet, for use on suction hose connections.<br/>Four (4) ladder belts meeting the requirements of NFPA 1983.<br/>One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983.<br/>One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983.<br/>One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.<br/>Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (102 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.<br/>Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.<br/>One (1) automatic external defibrillator (AED).<br/>If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus.<br/>If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6.<br/>If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.<br/>If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.</p> |
| 0519913 | Not Required, Soft Suction Hose  | <p><b>SOFT SUCTION HOSE</b></p> <p>There will be no soft suction hose provided.</p>  |
| 0027023 | No Strainer Required   |  |



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| 0602534 | Extinguisher, Dry Chemical, Quint NFPA 2016, Provided by Fire Department          | <p><b>DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, section 9.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus. The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.</p> |
| 0602352 | Extinguisher, 2.5 Gal. Pressurized Water, Quint, NFPA 2016, Provided by Fire Dept | <p><b>WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, section 9.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus. The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.</p>  |
| 0007482 | Not Required, Crowbars  |   |
| 0007484 | Not Required, Claw Tools  |   |
| 0602883 | Axe, Flathead, Quint NFPA 2016, Provided by Fire Department                       | <p><b>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus. The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.</p>   |
| 0602670 | Axe, Pickhead, Quint NFPA 2016, Provided by Fire Department                       | <p><b>PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT</b><br/> NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus. The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.</p>   |
| 0007494 | Not Required, Sledgehammers   |   |

**PAINT**

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.

Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion.

Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.

Finish Sanding - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.

Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.

Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.

Clear Coat - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.

After the cab and body are painted, the color will be verified to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications will be used to determine the color match. A Delta E reading will be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and painted separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards will be available upon request.

**PAINT - ENVIRONMENTAL IMPACT**

Contractor will meet or exceed all current state regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

Topcoats and primers will be chrome and lead free.

Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.

Particulate emission collection from sanding operations will have a 99.99% efficiency factor.

Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient

Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.

Paint wastes are disposed of in an environmentally safe manner.

Empty metal paint containers will be recycled to recover the metal.

Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his state EPA rules and regulations.

0709846

Paint, Two-Tone Color, Velocity/Impel

**CAB TWO-TONE PAINT**

The cab will be painted two-tone, with the upper section painted #10 white and the lower section painted #90 red. There will be a standard two-tone cab paint break provided.

There will be no cab shield provided.

0709845

Paint, Single Color, Body

**BODY PAINT**

The body will be painted to match the lower section of the cab.

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| 0646901 | Paint Chassis Frame Assy, With Liner, E-Coat, Standard | <p><b>PAINT CHASSIS FRAME ASSEMBLY</b><br/> The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.<br/> Components that are included with the chassis frame assembly that will be painted are:<br/> Frame rails<br/> Frame liners<br/> Cross members<br/> Axles<br/> Suspensions<br/> Steering gear<br/> Battery boxes<br/> Bumper extension weldment<br/> Frame extensions<br/> Body mounting angles<br/> Rear Body support substructure (front and rear)<br/> Pump house substructure<br/> Air tanks<br/> Steel fuel tank<br/> Castings<br/> Individual piece parts used in chassis and body assembly<br/> Components treated with epoxy E-coat protection prior to paint:<br/> Two (2) C-channel frame rails<br/> Two (2) frame liners<br/> The E-coat process will meet the technical properties shown.</p>  |
| 0693797 | No Paint Required, Aluminum Front Wheels               |  |
| 0693792 | No Paint Required, Aluminum Rear Wheels                |  |
| 0733739 | Paint, Axle Hubs                                       | <p><b>AXLE HUB PAINT</b><br/> All axle hubs will be painted to match lower job color.</p>  |
| 0007230 | Compartment, Painted, Spatter Gray                     | <p><b>COMPARTMENT INTERIOR PAINT</b><br/> The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.</p>  |
| 0782203 | Aerial Ladder Paint, ASL-Tandem, E-Coat                | <p><b>AERIAL DEVICE PAINT COLOR</b><br/> The aerial device paint procedure will consist of a six (6) step finishing process as follows:<br/> 1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the aerial device structural components above the rotation point will be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.<br/> 2. <u>Primer/Surfacer Coats</u> - A two (2) component urethane primer/surfacer will be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams will be caulked with a two (2) component epoxy caulk before painting.<br/> 3. <u>Hand Sanding</u> - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish.<br/> 4. <u>Sealer Primer Coat</u> - A two (2) component sealer primer coat will be applied over the sanded primer.<br/> 5. <u>Topcoat Paint</u> - Urethane base coat will be applied to opacity for correct color matching.<br/> 6. <u>Clearcoat</u> - Two (2) coats of an automotive grade two (2) component urethane will be applied.<br/> Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.<br/> All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor.<br/> Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items.<br/> The stabilizer beams and torque box will be treated with epoxy E-coat prior to painting to help provide resistance to corrosion and chemicals. The stabilizers and torque box will be painted black.<br/> The aerial device components will be painted as follows using the aforementioned six (6) step finishing process:<br/> Aerial device ladder sections and extension cylinders: white 10<br/> Aerial egress: #50 red (will be contrasting color to the aerial device ladder)<br/> Aerial turntable: white 10<br/> Aerial control console: white 10<br/> Aerial lift cylinders: white 10<br/> Aerial boom support: gloss black primer</p> |
| 0544087 | Reflective Band, 6"                                    | <p><b>REFLECTIVE BAND</b><br/> A 6.00" white reflective band will be provided across the front of the vehicle and along the sides of the body.</p>   |
| 0510041 | Reflective across Cab Face, Imp/Vel                    | The reflective band provided on the cab face will be below the headlights on the fiberglass.   |

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| 0536956 | Stripe, Chevron, Rear, Diamond Grade, Bumper Covered, Aerial | <b>REAR CHEVRON STRIPING</b><br>There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the rear wall, aluminum doors, and rear bumper. Rear compartment doors and stainless steel access doors will not be covered. The colors will be red and fluorescent yellow green diamond grade. Each stripe will be 6.00" in width. This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping. |
| 0598754 | Stripe, Reflective/Diamond Grade, 4.00" on Stabilizers       | <b>REFLECTIVE STRIPE ON STABILIZERS</b><br>There will be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.   |
| 0065687 | Stripe, Reflective, Cab Doors Interior                       | <b>CAB DOOR REFLECTIVE STRIPE</b><br>A 6.00" x 16.00" white reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel. This stripe will meet the NFPA 1901 requirement.  |
| 0594559 | Lettering Specifications, (Sign Gold Process)                | <b>LETTERING</b><br>The lettering will be 22 karat gold vinyl.   |
| 0685910 | Lettering, Sign Gold, 4.00", (21-40)                         | <b>LETTERING</b><br>Twenty-one (21) to forty (40) Sign Gold lettering, 4.00" high, with outline and shade will be provided.  |
| 0519961 | Lettering, Website Address, Reflective, Pair                 | <b>WEB SITE ADDRESS LETTERING, REFLECTIVE</b><br>There will be a one (1) pair of web site addresses, in 1.00" to 2.00" reflective lettering, installed on each crew cab door per job #31902.   |
| 0685991 | Lettering, Reflective, 10.00", (21-40)                       | <b>LETTERING</b><br>Twenty-one (21) to forty (40) reflective lettering, 10.00" high, with outline and shade will be provided.  |
| 0686013 | Lettering, Reflective, 6.00", Each                           | <b>LETTERING</b><br>There will be reflective lettering, 6.00" high, with no outline or shade provided. There will be six (6) letters provided.   |
| 0686018 | Lettering, Reflective, 5.00", Each                           | <b>LETTERING</b><br>There will be reflective lettering, 5.00" high, with outline and shade provided. There will be ten (10) letters provided.  |
| 0017268 | Decals, Customer furnished, Pierce installed, Per Pair       | <b>DECAL INSTALLATION</b><br>There will be one (1) pair of decals furnished by the fire department and applied by the apparatus manufacturer.  |
| 0755303 | Artwork File, Provided on Custom USB Drive                   | <b>ARTWORK ON CUSTOM USB DRIVE</b><br>There will be a custom USB drive with department specific artwork files provided to the Fire Department. Stock artwork, or artwork developed exclusively by Pierce Manufacturing, and proprietary fonts will not be included on the USB drive.   |
| 0666388 | Emblem, Freedom Flag with Twin Towers, Each                  | <b>EMBLEM</b><br>There will be two (2) emblem(s), approximately 12.00" - 14.00" wide in size, installed per job 31902. The emblem will feature a "Flying American Flag" and an "Eagle Head", along with buildings in the background.   |
| 0769771 | Lettering, Numerals, Grille, Painted (1), All Chassis        | <b>LETTERING/NUMERAL ON CAB GRILLE</b><br>One (1) painted letter/numeral, as determined by the fire department, will be provided on the cab grille.  |

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| 0772003 | Manual, Fire Apparatus Parts, USB Flash Drive, Custom           | <p><b>FIRE APPARATUS PARTS MANUAL</b><br/> There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.<br/> The manual(s) will contain the following:<br/> Job number<br/> Part numbers with full descriptions<br/> Table of contents<br/> Parts section sorted in functional groups reflecting a major system, component, or assembly<br/> Parts section sorted in alphabetical order<br/> Instructions on how to locate parts<br/> Each manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.<br/> <b>Service Parts Internet Site</b><br/> The service parts information included in these manuals are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.</p> |
| 0772037 | Manual, Chassis Service, USB Flash Drive, Custom                | <p><b>CHASSIS SERVICE MANUALS</b><br/> There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.<br/> The manual will contain the following sections:<br/> Job number<br/> Table of contents<br/> Troubleshooting<br/> Front Axle/Suspension<br/> Brakes<br/> Engine<br/> Tires<br/> Wheels<br/> Cab<br/> Electrical, DC<br/> Air Systems<br/> Plumbing<br/> Appendix<br/> The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.</p>   |
| 0773381 | Manual, Chassis Operation, (1) USB Flash Drive, Custom          | <p><b>CHASSIS OPERATION MANUAL</b><br/> The chassis operation manual will be provided on one (1) USB flash drive.</p>   |
| 0030008 | Warranty, Basic, 1 Year, Apparatus, WA0008                      | <p><b>ONE (1) YEAR MATERIAL AND WORKMANSHIP</b><br/> A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.</p>   |
| 0611136 | Warranty, Chassis, 3 Year, Velocity/Impel, WA0284               | <p><b>THREE (3) YEAR MATERIAL AND WORKMANSHIP</b><br/> The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.</p>  |
| 0696696 | Warranty, Engine, Detroit DD13, 5 Year, WA0180                  | <p><b>ENGINE WARRANTY</b><br/> A Detroit Diesel <b>five (5) year</b> limited engine warranty will be provided. A limited warranty certificate, WA0180, is included with this proposal.</p>  |
| 0684952 | Warranty, Steering Gear, TRW Ross TAS, 1 Year WA0202            | <p><b>STEERING GEAR WARRANTY</b><br/> A TRW <b>one (1) year</b> limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.</p>   |
| 0595767 | Warranty, Frame, 50 Year, Velocity/Impel, Dash CF, WA0038       | <p><b>FIFTY (50) YEAR STRUCTURAL INTEGRITY</b><br/> The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.</p>  |
| 0733309 | Warranty, Axle, 5 Year, Meritor, General Service, WA0384        | <p><b>FRONT AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b><br/> A Meritor™ Axle 5 year limited warranty will be provided.</p>   |
| 0733305 | Warranty, Tandem Axle, 5 Year, Meritor, General Service, WA0384 | <p><b>TDM REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b><br/> A Meritor™ Axle 5 year limited warranty will be provided.</p>  |
| 0652758 | Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232       | <p><b>ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b><br/> A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.</p>  |

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| 0019914 | Warranty, Structure, 10 Year, Custom Cab, WA0012           | <b>TEN (10) YEAR STRUCTURAL INTEGRITY</b><br>The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.   |
| 0744240 | Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055            | <b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b><br>A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.   |
| 0524627 | Warranty, Electronics, 5 Year, MUX, WA0014                 | <b>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</b><br>The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.   |
| 0695416 | Warranty, Pierce Camera System, WA0188                     | <b>CAMERA SYSTEM WARRANTY</b><br>A Pierce fifty four (54) monthwarranty will be provided for the camera system.  |
| 0647720 | Warranty, Pierce LED Strip Lights, WA0203                  | <b>COMPARTMENT LIGHT WARRANTY</b><br>The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.  |
| 0046369 | Warranty, 5-year EVS Transmission, Standard Custom, WA0187 | <b>TRANSMISSION WARRANTY</b><br>The transmission will have a <b>five (5) year/unlimited mileage</b> warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.<br>Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.                        |
| 0685945 | Warranty, Transmission Cooler, WA0216                      | <b>TRANSMISSION COOLER WARRANTY</b><br>The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.                               |
| 0688798 | Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195     | <b>WATER TANK WARRANTY</b><br>A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.  |
| 0596025 | Warranty, Structure, 10 Year, Body, WA0009                 | <b>TEN (10) YEAR STRUCTURAL INTEGRITY</b><br>The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.   |
| 0693127 | Warranty, Gortite, Roll-up Door, 6 Year, WA0190            | <b>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</b><br>A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A <b>six (6) year</b> limited warranty will be provided on painted and satin roll up doors.<br>The limited warranty certificate, WA0190, is included with this proposal. |
| 0734463 | Warranty, Pump, Waterous, 7 Year Parts, WA0382             | <b>PUMP WARRANTY</b><br>The Waterous pump will be provided with a Seven (7) year <b>material and workmanship limited warranty.</b><br><b>A copy of the warranty certificate will be submitted with the bid package (no exception).</b>   |
| 0648675 | Warranty, 10 Year S/S Pumbing, WA0035                      | <b>TEN (10) YEAR PUMP PLUMBING WARRANTY</b><br>The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.   |
| 0657846 | Warranty, Foam System, Husky 12, WA0231                    | <b>FOAM SYSTEM WARRANTY</b><br>The Husky 12 foam system limited warranty certificate, WA0231, is included with this proposal.  |
| 0006999 | Warranty, Structure, 20 Year, Aerial Device, WA0052        | <b>TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY</b><br>The Pierce device limited warranty certificate, WA0052, is included with this proposal.   |
| 0687388 | Warranty, Swivels, 5 Year, Aerial Device, WA0197           | <b>AERIAL SWIVEL WARRANTY</b><br>An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.   |

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| 0685727 | Warranty, Hydraulic System and Components, 3 Year/5 Year, WA0200         | <p><b>HYDRAULIC SYSTEM COMPONENTS WARRANTY</b><br/>Aerial hydraulic system components will be provided with a five (5) year material and workmanship limited warranty.</p> <p><b>HYDRAULIC SEAL WARRANTY</b><br/>Aerial hydraulic seals will be provided with a three (3) year material and workmanship limited warranty.<br/>A copy of the warranty certificates will be submitted with the bid package.</p>  |
| 0687327 | Warranty, Waterway, 10 Year, Aerial Device, WA0198                       | <p><b>AERIAL WATERWAY WARRANTY</b><br/>An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.</p>   |
| 0595860 | Warranty, Paint, 4 Year, Aerial Device, Pro-Rated, WA0047                | <p><b>FOUR (4) YEAR PRO-RATED PAINT AND CORROSION</b><br/>A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal.</p>   |
| 0725636 | Warranty, Harrison Generator, 2 Year                                     | <p><b>TWO (2) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY</b><br/>A Harrison Hydra-Gen generator two (2) year limited warranty will be provided.</p>  |
| 0595820 | Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057                         | <p><b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b><br/>A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.</p>  |
| 0595412 | Warranty, Graphics Lamination, 1 Year, Apparatus, WA0168                 | <p><b>ONE (1) YEAR MATERIAL AND WORKMANSHIP</b><br/>The Pierce graphics fading and deterioration limited warranty limited warranty certificate, WA0168, is included with this proposal.</p>  |
| 0683627 | Certification, Vehicle Stability, CD0156                                 | <p><b>VEHICLE STABILITY CERTIFICATION</b><br/>The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.</p>   |
| 0610837 | Certification, Engine Installation, Velocity, Detroit DD13, 2016, CD0148 | <p><b>ENGINE INSTALLATION CERTIFICATION</b><br/>The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of bid.</p>   |
| 0686786 | Certification, Power Steering, CD0098                                    | <p><b>POWER STEERING CERTIFICATION</b><br/>The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.</p>  |
| 0667417 | Certification, Cab Integrity, Velocity FR, CD0009                        | <p><b>CAB INTEGRITY CERTIFICATION</b><br/>The fire apparatus manufacturer will provide a cab integrity certification with this proposal. The certification will state that the cab has been tested and certified by an independent third-party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state-licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:<br/>European Occupant Protection Standard ECE Regulation No.29.<br/>SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.<br/>SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.</p> <p><b>Roof Crush</b><br/>The cab will be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons.</p> <p><b>Additional Roof Crush</b><br/>The same cab will be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times.</p> <p><b>Side Impact</b><br/>The same cab will be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.</p> <p><b>Frontal Impact</b><br/>The same cab will withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420.</p> <p><b>Additional Frontal Impact</b><br/>The same cab will withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420).<br/>The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.</p> |

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| 0548950 | Certification, Cab Door Durability, Velocity/Impel, CD0001                   | <p><b>CAB DOOR DURABILITY CERTIFICATION</b><br/> Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.</p>  |
| 0548967 | Certification, Windshield Wiper Durability, Impel/Veloccity, CD0005          | <p><b>WINDSHIELD WIPER DURABILITY CERTIFICATION</b><br/> Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i>. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.</p>   |
| 0667411 | Certification, Electric Window Durability, Velocity/Impel FR, CD0004         | <p><b>ELECTRIC WINDOW DURABILITY CERTIFICATION</b><br/> Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.</p>  |
| 0549273 | Certification, Seat Belt Anchors and Mounting, Imp/Vel/Vel SLT, CD0018       | <p><b>SEAT BELT ANCHOR STRENGTH</b><br/> Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.</p> <p><b>SEAT MOUNTING STRENGTH</b><br/> Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.</p>  |
| 0735950 | Certification, Cab HVAC System Perf, Vel/Imp FR, CD0166/CD0168/CD0176/CD0177 | <p><b>PERFORMANCE CERTIFICATIONS</b></p> <p><b>Cab Air Conditioning</b><br/> Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.</p> <p><b>Cab Defroster</b><br/> Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. <i>The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</i></p> <p><b>Cab Auxiliary Heater</b><br/> <i>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.</i></p> |
| 0545073 | Amp Draw Report, NFPA Current Edition  | <p><b>AMP DRAW REPORT</b><br/> The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.<br/> The manufacturer of the apparatus will provide the following:<br/> Documentation of the electrical system performance tests.<br/> A written load analysis, which will include the following:<br/> The nameplate rating of the alternator.<br/> The alternator rating under the conditions specified per:<br/> Applicable NFPA 1901 or 1906 (Current Edition).<br/> The minimum continuous load of each component that is specified per:<br/> Applicable NFPA 1901 or 1906 (Current Edition).<br/> Additional loads that, when added to the minimum continuous load, determine the total connected load.<br/> Each individual intermittent load.<br/> All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).</p>  |
| 0002758 | Amp Draw, NFPA/ULC Radio Allowance   |  |
| 0799248 | Appleton/Florida BTO   |  |



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| 0000049 | Ascendant BODY               |
| 0000012 | PIERCE CHASSIS               |
| 0562778 | DD13 ENGINE                  |
| 0046396 | EVS 4000 Series TRANSMISSION |
| 0020011 | WATEROUS PUMP                |
| 0020009 | POLY TANK                    |
| 0028048 | FOAM SYSTEM                  |
| 0020006 | SIDE CONTROL                 |
| 0020007 | AKRON VALVES                 |
| 0020015 | ABS SYSTEM                   |
| 0755453 | AERIAL BASE                  |



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship

### Basic Apparatus

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| Coverage:  | Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship              |
| Warranty Begins:   | The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first. |
| Warranty Period Ends After:                                    | Twelve (12) months.  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | No specific exclusions apply   |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Velocity and Impel Custom Chassis

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship   |
| Warranty Begins:   | The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.  |
| Warranty Period Ends After:                                    | Three (3) Years, or 30,000 Miles, or 5000 Engine Hours  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This limited warranty applies, where applicable, to Goldstar lamination, defroster heater coil and motor blower assembly (excluding the FET PWM module), heater, air conditioning condenser coil and fan/motor assembly, air conditioning evaporator coil and motor blower assembly (excluding the drain pan pump and thermostat), under seat heaters coil and motor blower assembly (excluding the FET PWM module), HVAC electronic switches, HVAC hoses and hard lines, heater water valve, Pierce PS6 seat frames and hardware, Pierce One-Eleven mirrors, Pierce hands-free scba holder, cracking or color loss of roto-molded components, Meritor rear axle, Wabco ABS system, cab door handles, Standen spring suspension components, and the gauge instrument cluster. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

# Limited Warranty on New Detroit Diesel

## DD13 Engines

### Used In Fire Truck or Crash Vehicle Applications



#### Terms of Coverage:

##### Uses

This warranty applies to the first retail purchaser and subsequent owners during the WARRANTY PERIOD of new DD13 Engines (referred to as Engine) manufactured by Detroit Diesel and/or supplied by Detroit Diesel or Detroit Diesel of Canada Limited (which are collectively referred to as Detroit Diesel) for use in fire truck or crash vehicle applications.

##### Defects

This warranty covers Engine REPAIRS to correct any malfunction occurring during the WARRANTY PERIOD resulting from defects in material or workmanship.

##### Repairs

To obtain warranty repairs, you must request the needed repairs within the WARRANTY PERIOD from an authorized Detroit Diesel service outlet. Only new genuine parts, remanufactured parts or components supplied or approved by Detroit Diesel will be used. Detroit Diesel may, at its discretion, replace rather than repair components. A reasonable time must be allowed to perform the warranty repair after taking the engine to the authorized service outlet. Repairs will be performed during normal business hours.

##### Warranty Period

The WARRANTY PERIOD begins on the date the Engine is delivered to the first retail purchaser or put in use prior to sale at retail, whichever date occurs first, and ends at the time or mileage/kilometer limits shown below:

| WARRANTY PERIOD  |  |                              |                                      |           |
|--|--|------------------------------|--------------------------------------|-----------|
| Item   | Warranty Limitations<br>(Whichever Occurs First) |                              | Repair Charge To Be<br>Paid By Owner |           |
|  | MONTHS   | MILES/KM                     | PARTS                                | LABOR     |
| Engine   | 0-60   | 0-100,000 mi<br>0-160,000 km | No Charge                            | No Charge |
| Accessories*   | 0-24   | 0-100,000 mi<br>0-160,000 km | No Charge                            | No Charge |
| * Fire Commander warranty is two year/unlimited mileage. |  |                              |                                      |           |

##### Service Supplies

The cost of service supplies such as coolant, oil and filters which are not reusable due to needed repairs is covered by this warranty.

##### Like Replacement Engine

Engine(s) supplied by Detroit Diesel as a replacement for an Engine still under warranty will assume the identity of the Engine being replaced and be entitled to the remaining warranty coverage.

##### Engine Removal and Reinstallation

Reasonable labor costs for engine removal and reinstallation, when necessary to make a warranty repair, are covered by this warranty.

##### Towing

During the base warranty period reasonable towing costs to the nearest authorized service outlet are covered by the warranty when due to warrantable failure and the engine is either inoperable, cannot be safely operated or continued operation would cause further damage to the Product.

#### This Warranty Does Not Cover:

##### Repairs Due To Accidents, Misuse, Alteration, Storage Damage, Negligence Or Certain Modifications

Repairs due to an accident, misuse, alteration, misapplication, storage damage, negligence or modification exceeding Detroit Diesel specifications, are not covered by this warranty.

##### Maintenance

Detroit Diesel is not responsible for the cost of maintenance or repairs due to lack of performance of required maintenance services or the failure to use fuel, oil, lubricants and coolant meeting Detroit Diesel-recommended specifications. Performance of the required maintenance and use of proper fuel, oil, lubricants and coolant are the responsibility of the owner. See the Engine Operator's Guide for full details.

##### Incidental or Consequential Damages

Detroit Diesel is not responsible for incidental or consequential costs or expenses which the owner may incur as a result of a malfunction or failure covered by this warranty, such as communication expenses, meals, lodging, overtime, loss of use of the Engine or vehicle ("downtime"), loss of time, inconvenience, cargo loss or damage, and other similar costs and expenses.

##### Other Limitations

The performance of REPAIRS is the exclusive Owner's remedy under this warranty. Detroit Diesel does not authorize any person to assume or create for it any other obligation or liability in connection with the Engine or the Accessories.

THIS LIMITED WARRANTY AND THE EMISSIONS CONTROL WARRANTY ARE THE ONLY WARRANTIES APPLICABLE TO THE ENGINE AND ACCESSORIES AS USED IN FIRE TRUCK OR CRASH VEHICLE APPLICATIONS. DETROIT DIESEL MAKES NO OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. DETROIT DIESEL SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES AS DESCRIBED ABOVE.

Some states do not allow the limitation of how long this warranty may last or the limitation or exclusion of incidental or consequential damages, so the above may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

**DETROIT DIESEL**   
**DEMAND PERFORMANCE™**  
 13400 Outer Drive, West / Detroit, Michigan 48239-4001  
 Telephone: 313-592-5000  
 www.detroitdiesel.com

**TRW COMMERCIAL STEERING SYSTEMS**  
800 HEATH STREET  
LAFAYETTE, INDIANA 47904



## **PRODUCT WARRANTY**

- I. WARRANTY:** The Commercial Steering Systems group of TRW, Inc., hereinafter referred to as "CSS", warrants that each new product supplied by CSS to its customer, when properly installed, used and maintained, shall be free from defect in material and workmanship for the period specified below:
- (A) CSS Product installed in **New On-highway Motor Vehicle:**
- Within twelve (12) months after date of delivery of such vehicle to the original retail purchaser, or before such vehicle has been driven one hundred thousand (100,000) miles, whichever event shall first occur.
- (B) CSS Product installed in **New Agricultural, Turf, Industrial, or Construction Vehicles and Related Equipment**
- Within twelve (12) months after date of delivery of such vehicle/equipment to the original retail purchaser or before such vehicle/equipment has been operated for two thousand (2000) hours or fifty thousand (50,000) miles, whichever occurs first.
- (C) CSS Product installed in **New End Product, Not Specifically Mentioned in Classifications (A) or (B) Above and All Other Off-Highway/Severe Applications:**
- Within six (6) months after date of delivery of the original equipment manufacturer's end product to the original retail purchaser.
- II. REMEDY:** Customer's sole remedy under the foregoing warranty is limited to correction by means of repair, replacement or issuance of credit, at the option of CSS, of any product which is:
- (A) Returned to CSS within the specified warranty time period, with prior notice to, and the written consent of, CSS, with transportation and handling charges prepaid, together with a statement describing the alleged defect, the part number, model number and application, and mileage or hours of use of such product; and
- (B) Upon examination, determined by CSS not to conform to the warranty.
- III.** Any product which is repaired or replaced under this warranty will be returned to customer prepaid. Disposition of any product determined not to be covered by this warranty will be at the customer's expense.
- IV.** CSS will not be liable for any repairs, replacements, or adjustments to any product or any cost of labor performed by or at the request of customer without the express prior written consent of CSS.
- V. EXCEPTIONS:** The provision of this warranty shall not apply to any CSS product which is used for a purpose for which it is not designed, or which shall have been repaired or altered in any way, or which has been subject to misuse, negligence or accident, neglect of normal maintenance services, so as, in the judgement of CSS to adversely affect its performance and reliability. In no case will the CSS warranty exceed the standard published warranty of its customer in terms of time and/or distance. In all events, the CSS warranty will expire thirty (30) months after the date of manufacture as stamped on the Product. In the case of hydraulic equipment, operation with unapproved fluid or temperatures voids this warranty.
- VI. EXCLUSION OF ALL OTHER REMEDIES AND LIMITATION OF LIABILITY:** Customer's sole and exclusive remedy under the foregoing warranty shall be for the repair, replacement or issuance of credit with respect to a defective product, as set forth and described above. Other provisions hereof notwithstanding, CSS shall not be liable to Customer, or any successor in interest, beneficiary or assignee of Customer, based upon any claim against CSS, whether in contract, warranty, negligence, strict liability, indemnity or otherwise, for any special, consequential, incidental or other damages relating in any way to the design, manufacture, sale, installation or other use of any product purchased from CSS.
- VII. EXCLUSION OF ALL OTHER WARRANTIES: THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY BY CSS AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES AND REPRESENTATIONS, WHETHER ORAL, WRITTEN, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**



# Fire and Rescue Apparatus

## Lifetime Fifty (50) Year Structural Integrity Chassis Frame & Crossmembers

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Custom chassis frame rail and cross members manufactured by Pierce shall be free from defects in material and workmanship |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).                               |
| Warranty Period Ends After:                                    | Fifty (50) Years<br>(Expected Life of Apparatus)  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty does not apply to damage caused by corrosion.   |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





# Fire and Rescue Apparatus



## SUPPLIER

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the purchaser who first puts the product in service ("Buyer"):

|  |  |
|--|--|
| <b>Coverage:</b>   | <b>The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description</b> |
| <b>Warranty Begins:</b>  | <b>The date of the original purchase invoice (issued when the product ships from the factory).</b>                     |
| <b>Warranty Period Ends After:</b>   | <b>Five (5) Years</b>  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <b>The exclusions listed in the attached Meritor warranty description shall apply.</b>                                 |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2020 VEHICLES



**MERITOR**







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## How to Read Warranty Coverage

|                 |   |                                   |
|-----------------|---|-----------------------------------|
| Number of Years | Mileage (in thousands)<br>Unl=Unlimited | P=Parts Only<br>P&L=Parts & Labor |
|-----------------|---|-----------------------------------|

**Notice:**

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

### Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).



# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- Bulk Hauler
- Chip Hauler (Truck)\*
- Doubles
- Flatbed
- General Freight
- Grain Hauler
- Livestock Hauler
- Moving Van
- Pipe Hauler
- Refrigerated Freight
- Tanker
- Triples

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/750/P&L

|        |               |                |                |                |                |
|--------|---------------|----------------|----------------|----------------|----------------|
| FD-965 | FF-967        | MFS-12-122B-N  | MFS-12-132C-N  | MFS-13-122B-N  | MFS-13B-122C-N |
| FF-941 | FG-941        | MFS-12-122C-N  | MFS-12E-132B-N | MFS-13-122C-N  | MFS-13B-132B-N |
| FF-942 | FG-943        | MFS-12E-122A-N | MFS-12E-132C-N | MFS-13-132B-N  | MFS-13B-132C-N |
| FF-943 | MFS-10-122A   | MFS-12E-122B-N | MFS-12-143A-N  | MFS-13-132C-N  | MFS-14-122A-N  |
| FF-944 | MFS-10-143A-N | MFS-12E-122C-N | MFS-12E-143A-N | MFS-13-143A-N  | MFS-14-124A-N  |
| FF-961 | MFS-10-144A-N | MFS-12-124A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-14-143A-N  |
| FF-966 | MFS-12-122A-N | MFS-12-132B-N  | MFS-13-122A-N  | MFS-13B-122B-N | MFS-14-144A-N  |

## Rear Drive Single Axles – 5/750/P&L

|                 |           |           |
|-----------------|-----------|-----------|
| RS-19-144/145/A | RS-21-145 | RS-23-160 |
| MS-19-14X       | RS-21-160 | RS-23-161 |
| MS-21-144       | MS-23-17X | RS-23-186 |

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

|                              |             |                     |
|------------------------------|-------------|---------------------|
| RT-34-144/P/A                | MA-40-165   | MT-40-14XHE         |
| RT-40-145/A                  | MA-40-175   | MT-40-144/P         |
| RT-40-160/P <sup>1,2</sup>   | MT-34-14X/P | MT-40-943           |
| RT-46-160/P <sup>1,2</sup>   | MT-40-14T/P | MT-40-943-SP        |
| RT-46-164EH/P <sup>1,2</sup> | MT-40-14X/P | RZ-166 <sup>2</sup> |
| RT-50-160/P <sup>1,2</sup>   | MT-40-14X/P | RZ-188              |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 5/500/P, 1/Unl/P&L |
| MXL  | 3/350/P, 1/Unl/P&L |
| 155N | 1/Unl/P            |
| 92N  | 1/Unl/P            |

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# LINEHAUL WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                                | 5/500/P, 1/100/L            |
| Q+ Drum Brake™   | 5/500/P, 1/Unl/P&L          |
| ASA  | 5/500/P, 1/Unl/P&L          |
| Hubs/Cast Drums and Other Wheel-end Components             | 1/Unl/P                     |
| Hydraulic Disc Brakes                                      | 1/Unl/P                     |
| All Other Brakes   | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>                      | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™  | 5/500/P, 1/Unl/L            |
| EX+ Air Disc Brake Extended Standard Warranty <sup>3</sup> | 5/500/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies only to MA761 friction material code CD brake assembly i.e. EX225LXXXCDXXX

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets              | 5/500/P, 1/100/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System <sup>2</sup>   | 1/100/P&L        |
| PreSet by Meritor <sup>3</sup> | 5/500/P&L        |
| AxlePak5 <sup>4</sup>          | 5P/L             |
| AxlePak7 <sup>5</sup>          | 7P/L             |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

|                                    |           |
|------------------------------------|-----------|
| TQ, TQD, TR, TRD Beam and Brackets | 5/750/P&L |
|------------------------------------|-----------|

<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/100/P&L        |
| PinLoc Actuator                                   | 3/300/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs & Rebound Straps                      | 2/200/P, 1/100/L |
| Bushings  | 5/500/P, 3/300/L |

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> “Curbing damage” is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.



# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

- Auto Hauler
- Beverage Truck
- Chip Hauler
- Cross Country Coach
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Newspaper Delivery
- Pick-Up and Delivery
- Pipe Hauler
- Platform Auto Hauler
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Trailer
- Tour Bus
- Wrecker

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 2/Unl/P&L

|                     |              |                |                |                |                |
|---------------------|--------------|----------------|----------------|----------------|----------------|
| FD-965              | FL-943       | MFS-8-163B-N   | MFS-12E-132B-N | MFS-13-132C-N  | MFS-16-143A-N  |
| FF-941              | MFS-6-151A-N | MFS-10-122A    | MFS-12-132C-N  | MFS-13B-132B-N | MFS-18-133A-N  |
| FF-942              | MFS-6-153B-N | MFS-10-143A-N  | MFS-12E-132C-N | MFS-13B-132C-N | MFS-18-135A-N  |
| FF-943              | MFS-6-162B-N | MFS-10-144A-N  | MFS-12-143A-N  | MFS-13-143A-N  | MFS-18-193A-N  |
| FF-944              | MFS-6-153C-N | MFS-12-122A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-20-133A-N  |
| FF-946              | MFS-6-162C-N | MFS-12E-122A-N | MFS-12E-143A-N | MFS-14-122A-N  | MFS-20-135A-N  |
| FF-961              | MFS-7-113C-N | MFS-12-122B-N  | MFS-13-122A-N  | MFS-14-124A-N  | MFS-20-192A-N  |
| FF-966              | MFS-7-153C-N | MFS-12E-122B-N | MFS-13-122B-N  | MFS-14-143A-N  | MFS-20-193A-N  |
| FG-967              | MFS-7-163C-N | MFS-12-122C-N  | MFS-13B-122B-N | MFS-14-144A-N  | MFS-22-135A-N  |
| FG-941              | MFS-8-113B-N | MFS-12E-122C-N | MFS-13-122C-N  | MFS-16-122A-N  | MFS-22H-135A-N |
| FH-941              | MFS-8-143A-N | MFS-12-124A-N  | MFS-13B-122C-N | MFS-16-133A-N  | MFS-22-193A-N  |
| FH-946 <sup>1</sup> | MFS-8-153B-N | MFS-12-132B-N  | MFS-13-132B-N  | MFS-16-135A-N  | MFS-22H-193A-N |
| FL-941              |              |                |                |                |                |

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Front Drive/Non-Drive Steer Axles – 1/Unl/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

## Rear Drive Tandem/Tridem - 3/Unl/P&L

|               |             |
|---------------|-------------|
| RT-40-160/P   | RT-50-160/P |
| RT-46-160/P   | RZ-166      |
| RT-46-164EH/P |             |

## Rear Drive Axles – 1/Unl/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 4/400/P, 1/Unl/P&L |
| MXL  | 3/350/P, 1/Unl/P&L |
| 155N | 1/Unl/P            |
| 92N  | 1/Unl/P            |

## Rear Drive Single Axles – 2/Unl/P&L

|                 |             |                        |              |              |
|-----------------|-------------|------------------------|--------------|--------------|
| MS-17-13X       | MS-21-14X   | RC-23-160              | RS-24-160    | MS-30-616-SP |
| MS-17-14X       | MS-21-144   | RC-23-161              | RC-25-160    | RS-35-380    |
| MS-19-13X       | MS-23-17X   | RC-23-162 <sup>1</sup> | RS-26-185    | 71162        |
| MS-19-14X       | RS-21-145/A | RC-23-165 <sup>1</sup> | MS-26-616    | 71163        |
| RS-17-144/145/A | RS-21-160   | RS-23-160              | MS-26-616-SP | 79163        |
| RS-19-144/145/A | RC-22-145   | RS-23-161              | RS-30-185    |              |
| MS-21-13X       | RC-22-145/A | RS-23-186              | MS-30-616    |              |

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

|               |             |                        |                        |
|---------------|-------------|------------------------|------------------------|
| MT-34-14X/P   | MT-40-14XHE | RT-44-145/P            | MT-58-616              |
| RT-34-144/P/A | MT-40-144/P | RT-46-169              | RT-58-185 <sup>1</sup> |
| MT-40-14T/P   | RT-40-145/A | MT-52-616              | MT-70-380              |
| MT-40-14X/P   | MT-44-14X/P | RT-52-185 <sup>1</sup> | RZ-188                 |

## Transmission – 1/Unl/P&L

|     |        |
|-----|--------|
| 516 | FAT 30 |
|-----|--------|

## PTO – 1/Unl/P&L

|         |         |          |
|---------|---------|----------|
| MPT-318 | MPT-526 | MPT-1702 |
| MPT-500 | MPT-531 | MPT-175  |
| MPT-510 | MPT-543 | MPT-185  |
| MPT-518 | MPT-170 | MPT-190  |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                    | 3/Unl/P, 1/Unl/L            |
| Cam P <sup>3</sup>                             | 2/200/P                     |
| Cam  | 3/Unl/P                     |
| Q+ Drum Brake™                                 | 3/Unl/P&L                   |
| Q+ Drum Brake™ <sup>3</sup>                    | 2/200/P&L                   |
| ASA  | 3/Unl/P                     |
| ASA <sup>3</sup>                               | 2/200/P                     |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P                     |
| Hydraulic Disc Brakes                          | 1/Unl/P                     |
| All Other Brakes                               | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>          | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™                            | 2/Unl/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |
| AxlePak <sup>4</sup>           | 5/P&L            |
| AxlePak <sup>5</sup>           | 7/P&L            |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

|                                |                  |
|--------------------------------|------------------|
| Beam & Brackets                | 6/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System                | 1/Unl/P&L        |
| AxlePak7                       | 7/P&L            |
| Beam and Brackets              | 7/P, 1/L         |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/Unl/P&L        |
| PinLoc Air Actuator                               | 3/Unl/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs and Rebound Straps                    | 2/Unl/P, 1/Unl/L |
| Bushings <sup>3</sup>                             | 5/Unl/P, 3/Unl/L |

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

|   |                  |
|---|------------------|
| TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup> | 3/Unl/P, 1/Unl/L |
| MC14002, MC16003, FH946                         | 2/Unl/P&L        |

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/Unl/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Heavy Service/Specialty Vehicle

- Airport Rescue Fire Fighting (ARFF)
- Airport Shuttle\*
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Mixer
- Demolition
- Drill Rig
- Dump
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Rear Loader (Refuse)
- Recycling Truck
- Residential Pick-Up (Refuse)
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus\*
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Utility Truck
- Winch Truck

\*Commercial chassis only

### Heavy Service/Specialty Vehicle Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

### Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

|        |              |                |                |               |                |               |
|--------|--------------|----------------|----------------|---------------|----------------|---------------|
| FD-965 | FL-941       | MFS-10-143A-N  | MFS-12-143A-N  | MFS-13-144A-N | MFS-18-193A-N  | MX-12-120     |
| FF-941 | FL-943       | MFS-10-144A-N  | MFS-12-144A-N  | MFS-13-155    | MFS-20-133A-N  | MX-12-120 EVO |
| FF-942 | MFS-6-151A-N | MFS-12-122     | MFS-12-155     | MFS-14-122    | MFS-20-135A-N  | MX-14-120     |
| FF-943 | MFS-6-153B   | MFS-12E-122    | MFS-13-122     | MFS-14-124A-N | MFS-20-192A-N  | MX-16-120     |
| FF-944 | MFS-6-162B   | MFS-12-122B-N  | MFS-13-122B-N  | MFS-14-143A-N | MFS-20-193A-N  | MX-18-120     |
| FF-946 | MFS-6-162C   | MFS-12E-122B-N | MFS-13B-122B-N | MFS-14-144A-N | MFS-22-135A-N  | MX-17-140     |
| FF-961 | MFS-7-113C-N | MFS-12-122C-N  | MFS-13-122C-N  | MFS-16-122A-N | MFS-22H-135A-N | MX-19-140     |
| FF-966 | MFS-7-153C-N | MFS-12E-122C-N | MFS-13B-122C-N | MFS-16-133A-N | MFS-22-193A-N  | MX-21-140     |
| FF-967 | MFS-7-163C-N | MFS-12-124A-N  | MFS-13-132B-N  | MFS-16-135A-N | MFS-22H-193A-N | MX-21-160     |
| FG-941 | MFS-8-113B-N | MFS-12-132B-N  | MFS-13B-132B-N | MFS-16-143A-N | RF-16-145      | MX-23-160     |
| FG-943 | MFS-8-153B-N | MFS-12E-132B-N | MFS-13-132C-N  | MFS-18-133A-N | RF-21-160      | MX-810        |
| FH-941 | MFS-8-163B-N | MFS-12-132C-N  | MFS-13B-132C-N | MFS-18-135A-N | MX-10-120      |               |
| FH-946 | MFS-10-122A  | MFS-12E-132C-N | MFS-13-143A-N  | MFS-18-192A-N | MX-10-120 EVO  |               |

### Front Drive/Non-Drive Steer Axles – 1/Unl/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

### Rear Drive Axles – 1/Unl/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

### Drivelines

|     |                    |
|-----|--------------------|
| RPL | 3/Unl/P, 1/Unl/P&L |
| 92N | 1/Unl/P&L          |
| MXL | 1/Unl/P&L          |

### Rear Drive Single Axles – 2/Unl/P&L

|                 |               |               |              |
|-----------------|---------------|---------------|--------------|
| MS-17-14X       | RS-21-160     | RS-24-160     | MS-35-380    |
| RS-17-144/145/A | RC-22-145     | RS-25-160     | RS-38-380    |
| MS-19-14X       | RC-23-160     | MS-26-616     | RC-25-160    |
| RS-19-144       | RH-23-160     | MS-26-616-SP  | RC-26-633    |
| MS-21-114       | RS-23-160     | RS-26-185/380 | MT-58-616    |
| MS-21-14X       | RC-23-161     | MS-30-616     | MT-58-616-SP |
| RS-21-145       | RS-23-161     | MS-30-616-SP  |              |
| RS-21-145/A     | RS-23-186/380 | RS-30-185/380 |              |

### Transmission – 1/Unl/P&L

516  
FAT 30

### PTO – 1/Unl/P&L

|         |         |          |
|---------|---------|----------|
| MPT-318 | MPT-526 | MPT-1702 |
| MPT-500 | MPT-531 | MPT-175  |
| MPT-510 | MPT-543 | MPT-185  |
| MPT-518 | MPT-170 | MPT-190  |



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

|               |              |                              |           |
|---------------|--------------|------------------------------|-----------|
| MT-34-14X/P   | RT-44-145/P  | RT-52-185/380 <sup>1,2</sup> | MT-70-380 |
| RT-34-144/P/A | RT-46-169    | MT-58-616                    | RZ-188    |
| MT-40-14X/P   | RT-58-160    | MT-58-616-SP                 |           |
| RT-40-145/A   | MT-52-616    | RT-58-185/380 <sup>1,2</sup> |           |
| MT-44-14X/P   | MT-52-616-SP | RT-70-380                    |           |

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam P  | 3/Unl/P   |
| Cam P <sup>3</sup>                             | 2/100/P   |
| Cam Cast Plus™                                 | 2/100/P&L |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| Q+ Drum Brake™ <sup>2</sup>                    | 2/100/P&L |
| ASA  | 3/Unl/P   |
| ASA <sup>2</sup>                               | 2/100/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake                             | 2/100/P&L |

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Rear Drive Tandem/Tridem - 3/Unl/P&L

|                                |
|--------------------------------|
| RT-40-160/P/A <sup>3</sup>     |
| RT-46-160/P/A <sup>1,3</sup>   |
| RT-46-164EH/P/A <sup>2,3</sup> |
| RT-50-160/P/A <sup>3</sup>     |
| RZ-166                         |

<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|  |                  |
|--|------------------|
| MTA (Trailing Arm)                       |                  |
| Major Structural Components <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Height Control Valve                     | 1/Unl/P&L        |
| Shock Absorbers                          | 2/Unl/P&L        |
| Air Springs                              | 2/Unl/P, 1/Unl/L |
| Bushings <sup>1</sup>                    | 5/Unl/P, 3/Unl/L |

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Gearboxes – 1/Unl/P&L

|          |         |         |         |         |         |
|----------|---------|---------|---------|---------|---------|
| MGX-240  | MGX-376 | MGX-448 | MGX-506 | MGX-528 | MGX-546 |
| MGX-279  | MGX-377 | MGX-456 | MGX-514 | MGX-533 | MGX-550 |
| MGX-279D | MGX-378 | MGX-478 | MGX-519 | MGX-534 |         |
| MGX-280  | MGX-380 | MGX-480 | MGX-520 | MGX-536 |         |
| MGX-285  | MGX-384 | MGX-487 | MGX-522 | MGX-537 |         |
| MGX-292  | MGX-402 | MGX-488 | MGX-524 | MGX-541 |         |
| MGX-314  | MGX-413 | MGX-505 | MGX-527 | MGX-545 |         |

## Transfer Cases – 1/Unl/P

|                                  |                          |                          |
|----------------------------------|--------------------------|--------------------------|
| MTC-4213                         | MTC-3118-CV (358)        | MTC-3209-GV (RTC-60/420) |
| MTC-4210                         | MTC-3120-FV (TC-143)     | MTC-3209-GV (RTC-60/380) |
| MTC-4208                         | MTC-3124 (T-2119)        | MTC-3209-GV (MTC-60/420) |
| MTC-4206-FV (TC-38)              | MTC-3205-GV (MTC-25/247) | MTC-3209-GV (MTC-60/380) |
| MTC-3106-FV (TC-137)             | MTC-3205-GV (MTC-25/350) | MTC-3212-CV (315 & 548B) |
| MTC-3111 (T-2111)                | MTC-3205-GV (RTC-25/350) | MTC-3312-FV (TC-270)     |
| MTC-3112-CV (529 & 548C)         | MTC-3206-FV (TC-237)     | MTC-3220-FC (TC-142)     |
| MTC-3116 (T-2111)                | MTC-3206-CS (544)        | MTC-2212-CV (306)        |
| MTC-3118-FV (TC-180 & TC-180-23) | MTC-3208-GV (RTC-50)     |                          |





# FIRE AND EMERGENCY WARRANTY INFORMATION

## Fire and Emergency Vehicles

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Command Vehicle
- Crash Fire Rescue (CFR)
- Pumper
- Rapid Intervention Vehicle (RIV)
- Tanker

## Fire and Emergency Typically Is

- Lower mileage operations (less than 20,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/Unl/P&L

|               |               |                |
|---------------|---------------|----------------|
| FL-941        | MFS-18-193A-N | MFS-22-135A-N  |
| FL-943        | MFS-20-133A-N | MFS-22H-135A-N |
| MFS-18-133A-N | MFS-20-135A-N | MFS-22-193A-N  |
| MFS-18-135A-N | MFS-20-193A-N | MFS-22H-193A-N |

## Front Drive Steer Axles – 2/Unl/P&L

|          |          |          |
|----------|----------|----------|
| MX-19140 | MX-21160 | MX-23810 |
| MX-21140 | MX-23160 |          |

## Rear Drive Single Axles – 5/Unl/P&L

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| RC-23-160 | RS-23-186 | RS-26-185 | RS-25-160 |
| RS-23-160 | RS-24-160 | RS-30-185 |           |
| RS-23-161 | RC-25-160 | RS-35-380 |           |

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 5/Unl/P&L

|             |               |                        |
|-------------|---------------|------------------------|
| MT-40-14X/P | RT-44-145/P   | MT-52-616              |
| MT-40-144/P | RT-46-160/P   | RT-52-185 <sup>1</sup> |
| RT-40-145/A | RT-46-164EH/P | MT-58-616              |
| RT-40-160/P | RT-46-169     | RT-58-185 <sup>1</sup> |
| MT-44-14X/P | RT-50-160/P   | MT-70-380              |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam  | 3/Unl/P   |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| ASA  | 3/Unl/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake™                            | 2/Unl/P&L |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

## Drivelines

|      |                  |
|------|------------------|
| RPL  | 4/400/P, 1/Unl/L |
| MXL  | 3/350/P, 1/Unl/L |
| 155N | 1/Unl/P          |
| 92N  | 1/Unl/P          |

## Transfer Cases – 1/Unl/P

|          |                   |
|----------|-------------------|
| MTC-4208 | MTC-3111 (T-2111) |
| MTC-4210 | MTC-3116 (T-2111) |
| MTC-4213 | MTC-3124 (T-2119) |





# TRANSIT BUS WARRANTY INFORMATION

## Transit Bus Vehicles

- Airport Shuttle
- City Bus
- Commuter Coach
- Shuttle Bus
- Transit Bus
- Trolley

## Transit Bus Typically Is

- Moderate mileage operation (less than 50,000 miles per year)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 5/300/P&L

FH-946                      MFS-12-155  
 FH-941<sup>1</sup>                     MFS-13-155

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Drivelines

RPL                                      3/Unl/P, 1/Unl/L  
 92N                                        1/Unl/P&L  
 MXL                                        1/Unl/P&L

## Rear Drive Single Axles – 5/300/P&L

RS-23-160                    79163                                      RS-21-160  
 RC-23-161                    RC-23-162<sup>1</sup>  
 71163                                RC-23-165<sup>1</sup>

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Tag Axles – 2/Unl/P&L

MC-14002  
 MC-16003  
 FH-946

## Brake Components

Cam Cast Plus™                      2/100/P&L  
 Q+ Drum Brake™<sup>1</sup>                    2/100/P&L  
 ASA<sup>1</sup>                                        2/100/P  
 Hubs/Cast Drums and  
 Other Wheel-end  
 Components                              1/Unl/P  
 All Other Brakes                         1/Unl/P  
 EX+ Air Disc Brake                    2/100/P&L

<sup>1</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

## Center Non-drive Axles – 5/300/P&L

MC-26000  
 71063  
 79063





# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Heavy Vehicle Systems, LLC warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number 1 and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not branded by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Product models, brands, names and trademarks depicted herein are the property of their respective owners and, except where otherwise indicated, are not in any way associated with Meritor Heavy Vehicle Systems, LLC, or any parent or affiliate, thereof.



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# Fire and Rescue Apparatus



## SUPPLIER

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the purchaser who first puts the product in service ("Buyer"):

|  |  |
|--|--|
| <b>Coverage:</b>   | <b>The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description</b> |
| <b>Warranty Begins:</b>  | <b>The date of the original purchase invoice (issued when the product ships from the factory).</b>                     |
| <b>Warranty Period Ends After:</b>   | <b>Five (5) Years</b>  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <b>The exclusions listed in the attached Meritor warranty description shall apply.</b>                                 |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2020 VEHICLES



**MERITOR**





# WARRANTY INFORMATION CONTENTS

Effective Model Year 2020 Vehicles

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## How to Read Warranty Coverage

|                 |   |                                   |
|-----------------|---|-----------------------------------|
| Number of Years | Mileage (in thousands)<br>Unl=Unlimited | P=Parts Only<br>P&L=Parts & Labor |
|-----------------|---|-----------------------------------|

### Notice:

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

### Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).



# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- Bulk Hauler
- Chip Hauler (Truck)\*
- Doubles
- Flatbed
- General Freight
- Grain Hauler
- Livestock Hauler
- Moving Van
- Pipe Hauler
- Refrigerated Freight
- Tanker
- Triples

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

**Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.**

## Front Non-Drive Steer Axles – 5/750/P&L

|        |               |                |                |                |                |
|--------|---------------|----------------|----------------|----------------|----------------|
| FD-965 | FF-967        | MFS-12-122B-N  | MFS-12-132C-N  | MFS-13-122B-N  | MFS-13B-122C-N |
| FF-941 | FG-941        | MFS-12-122C-N  | MFS-12E-132B-N | MFS-13-122C-N  | MFS-13B-132B-N |
| FF-942 | FG-943        | MFS-12E-122A-N | MFS-12E-132C-N | MFS-13-132B-N  | MFS-13B-132C-N |
| FF-943 | MFS-10-122A   | MFS-12E-122B-N | MFS-12-143A-N  | MFS-13-132C-N  | MFS-14-122A-N  |
| FF-944 | MFS-10-143A-N | MFS-12E-122C-N | MFS-12E-143A-N | MFS-13-143A-N  | MFS-14-124A-N  |
| FF-961 | MFS-10-144A-N | MFS-12-124A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-14-143A-N  |
| FF-966 | MFS-12-122A-N | MFS-12-132B-N  | MFS-13-122A-N  | MFS-13B-122B-N | MFS-14-144A-N  |

## Rear Drive Single Axles – 5/750/P&L

|                 |           |           |
|-----------------|-----------|-----------|
| RS-19-144/145/A | RS-21-145 | RS-23-160 |
| MS-19-14X       | RS-21-160 | RS-23-161 |
| MS-21-144       | MS-23-17X | RS-23-186 |

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

|                              |             |                     |
|------------------------------|-------------|---------------------|
| RT-34-144/P/A                | MA-40-165   | MT-40-14XHE         |
| RT-40-145/A                  | MA-40-175   | MT-40-144/P         |
| RT-40-160/P <sup>1,2</sup>   | MT-34-14X/P | MT-40-943           |
| RT-46-160/P <sup>1,2</sup>   | MT-40-14T/P | MT-40-943-SP        |
| RT-46-164EH/P <sup>1,2</sup> | MT-40-14X/P | RZ-166 <sup>2</sup> |
| RT-50-160/P <sup>1,2</sup>   | MT-40-14X/P | RZ-188              |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 5/500/P, 1/Unl/P&L |
| MXL  | 3/350/P, 1/Unl/P&L |
| 155N | 1/Unl/P            |
| 92N  | 1/Unl/P            |

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.





# LINEHAUL WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                                | 5/500/P, 1/100/L            |
| Q+ Drum Brake™   | 5/500/P, 1/Unl/P&L          |
| ASA  | 5/500/P, 1/Unl/P&L          |
| Hubs/Cast Drums and Other Wheel-end Components             | 1/Unl/P                     |
| Hydraulic Disc Brakes                                      | 1/Unl/P                     |
| All Other Brakes   | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>                      | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™  | 5/500/P, 1/Unl/L            |
| EX+ Air Disc Brake Extended Standard Warranty <sup>3</sup> | 5/500/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies only to MA761 friction material code CD brake assembly i.e. EX225LXXXCDXXX

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets              | 5/500/P, 1/100/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System <sup>2</sup>   | 1/100/P&L        |
| PreSet by Meritor <sup>3</sup> | 5/500/P&L        |
| AxlePak5 <sup>4</sup>          | 5P/L             |
| AxlePak7 <sup>5</sup>          | 7P/L             |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

|                                    |           |
|------------------------------------|-----------|
| TQ, TQD, TR, TRD Beam and Brackets | 5/750/P&L |
|------------------------------------|-----------|

<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/100/P&L        |
| PinLoc Actuator                                   | 3/300/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs                                       | 2/200/P, 1/100/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/100/P&L        |
| Shock Absorbers                                   | 2/200/P&L        |
| Air Springs & Rebound Straps                      | 2/200/P, 1/100/L |
| Bushings  | 5/500/P, 3/300/L |

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> “Curbing damage” is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.



# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

- Auto Hauler
- Beverage Truck
- Chip Hauler
- Cross Country Coach
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Newspaper Delivery
- Pick-Up and Delivery
- Pipe Hauler
- Platform Auto Hauler
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Trailer
- Tour Bus
- Wrecker

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 2/Unl/P&L

|                     |              |                |                |                |                |
|---------------------|--------------|----------------|----------------|----------------|----------------|
| FD-965              | FL-943       | MFS-8-163B-N   | MFS-12E-132B-N | MFS-13-132C-N  | MFS-16-143A-N  |
| FF-941              | MFS-6-151A-N | MFS-10-122A    | MFS-12-132C-N  | MFS-13B-132B-N | MFS-18-133A-N  |
| FF-942              | MFS-6-153B-N | MFS-10-143A-N  | MFS-12E-132C-N | MFS-13B-132C-N | MFS-18-135A-N  |
| FF-943              | MFS-6-162B-N | MFS-10-144A-N  | MFS-12-143A-N  | MFS-13-143A-N  | MFS-18-193A-N  |
| FF-944              | MFS-6-153C-N | MFS-12-122A-N  | MFS-12-144A-N  | MFS-13-144A-N  | MFS-20-133A-N  |
| FF-946              | MFS-6-162C-N | MFS-12E-122A-N | MFS-12E-143A-N | MFS-14-122A-N  | MFS-20-135A-N  |
| FF-961              | MFS-7-113C-N | MFS-12-122B-N  | MFS-13-122A-N  | MFS-14-124A-N  | MFS-20-192A-N  |
| FF-966              | MFS-7-153C-N | MFS-12E-122B-N | MFS-13-122B-N  | MFS-14-143A-N  | MFS-20-193A-N  |
| FG-967              | MFS-7-163C-N | MFS-12-122C-N  | MFS-13B-122B-N | MFS-14-144A-N  | MFS-22-135A-N  |
| FG-941              | MFS-8-113B-N | MFS-12E-122C-N | MFS-13-122C-N  | MFS-16-122A-N  | MFS-22H-135A-N |
| FH-941              | MFS-8-143A-N | MFS-12-124A-N  | MFS-13B-122C-N | MFS-16-133A-N  | MFS-22-193A-N  |
| FH-946 <sup>1</sup> | MFS-8-153B-N | MFS-12-132B-N  | MFS-13-132B-N  | MFS-16-135A-N  | MFS-22H-193A-N |
| FL-941              |              |                |                |                |                |

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Front Drive/Non-Drive Steer Axles – 1/Unl/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

## Rear Drive Tandem/Tridem - 3/Unl/P&L

|               |             |
|---------------|-------------|
| RT-40-160/P   | RT-50-160/P |
| RT-46-160/P   | RZ-166      |
| RT-46-164EH/P |             |

## Rear Drive Axles – 1/Unl/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

## Drivelines

|      |                    |
|------|--------------------|
| RPL  | 4/400/P, 1/Unl/P&L |
| MXL  | 3/350/P, 1/Unl/P&L |
| 155N | 1/Unl/P            |
| 92N  | 1/Unl/P            |

## Rear Drive Single Axles – 2/Unl/P&L

|                 |             |                        |              |              |
|-----------------|-------------|------------------------|--------------|--------------|
| MS-17-13X       | MS-21-14X   | RC-23-160              | RS-24-160    | MS-30-616-SP |
| MS-17-14X       | MS-21-144   | RC-23-161              | RC-25-160    | RS-35-380    |
| MS-19-13X       | MS-23-17X   | RC-23-162 <sup>1</sup> | RS-26-185    | 71162        |
| MS-19-14X       | RS-21-145/A | RC-23-165 <sup>1</sup> | MS-26-616    | 71163        |
| RS-17-144/145/A | RS-21-160   | RS-23-160              | MS-26-616-SP | 79163        |
| RS-19-144/145/A | RC-22-145   | RS-23-161              | RS-30-185    |              |
| MS-21-13X       | RC-22-145/A | RS-23-186              | MS-30-616    |              |

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

|               |             |                        |                        |
|---------------|-------------|------------------------|------------------------|
| MT-34-14X/P   | MT-40-14XHE | RT-44-145/P            | MT-58-616              |
| RT-34-144/P/A | MT-40-144/P | RT-46-169              | RT-58-185 <sup>1</sup> |
| MT-40-14T/P   | RT-40-145/A | MT-52-616              | MT-70-380              |
| MT-40-14X/P   | MT-44-14X/P | RT-52-185 <sup>1</sup> | RZ-188                 |

## Transmission – 1/Unl/P&L

|     |        |
|-----|--------|
| 516 | FAT 30 |
|-----|--------|

## PTO – 1/Unl/P&L

|         |         |          |
|---------|---------|----------|
| MPT-318 | MPT-526 | MPT-1702 |
| MPT-500 | MPT-531 | MPT-175  |
| MPT-510 | MPT-543 | MPT-185  |
| MPT-518 | MPT-170 | MPT-190  |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

|  |                             |
|--|-----------------------------|
| Cam Q Series Trailer Brakes                    | 3/Unl/P, 1/Unl/L            |
| Cam P <sup>3</sup>                             | 2/200/P                     |
| Cam  | 3/Unl/P                     |
| Q+ Drum Brake™                                 | 3/Unl/P&L                   |
| Q+ Drum Brake™ <sup>3</sup>                    | 2/200/P&L                   |
| ASA  | 3/Unl/P                     |
| ASA <sup>3</sup>                               | 2/200/P                     |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P                     |
| Hydraulic Disc Brakes                          | 1/Unl/P                     |
| All Other Brakes                               | 1/Unl/P                     |
| STEELite X30 Drum Brake™ <sup>2</sup>          | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™                            | 2/Unl/P&L                   |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |
| AxlePak <sup>4</sup>           | 5/P&L            |
| AxlePak <sup>5</sup>           | 7/P&L            |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

|                                |                  |
|--------------------------------|------------------|
| Beam & Brackets                | 6/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>1</sup> |                  |
| Standard System                | 1/Unl/P&L        |
| AxlePak7                       | 7/P&L            |
| Beam and Brackets              | 7/P, 1/L         |

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

|   |                  |
|---|------------------|
| MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup> |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Curbing Damage Warranty <sup>2</sup>              | 5/500/P, 1/100/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| PinLoc Air Controls                               | 1/Unl/P&L        |
| PinLoc Air Actuator                               | 3/Unl/P&L        |
| MPA20 (Single Axle Parallelogram)                 |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs                                       | 2/Unl/P, 1/Unl/L |
| Bushings  | 5/P, 3/L         |
| MTA (Trailing Arm)                                |                  |
| Major Structural Components                       | 5/Unl/P, 1/Unl/L |
| Height Control Valve                              | 1/Unl/P&L        |
| Shock Absorbers                                   | 2/Unl/P&L        |
| Air Springs and Rebound Straps                    | 2/Unl/P, 1/Unl/L |
| Bushings <sup>3</sup>                             | 5/Unl/P, 3/Unl/L |

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

|   |                  |
|---|------------------|
| TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup> | 3/Unl/P, 1/Unl/L |
| MC14002, MC16003, FH946                         | 2/Unl/P&L        |

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/Unl/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Heavy Service/Specialty Vehicle

- Airport Rescue Fire Fighting (ARFF)
- Airport Shuttle\*
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Mixer
- Demolition
- Drill Rig
- Dump
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Rear Loader (Refuse)
- Recycling Truck
- Residential Pick-Up (Refuse)
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus\*
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Utility Truck
- Winch Truck

\*Commercial chassis only

### Heavy Service/Specialty Vehicle Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

### Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

|        |              |                |                |               |                |               |
|--------|--------------|----------------|----------------|---------------|----------------|---------------|
| FD-965 | FL-941       | MFS-10-143A-N  | MFS-12-143A-N  | MFS-13-144A-N | MFS-18-193A-N  | MX-12-120     |
| FF-941 | FL-943       | MFS-10-144A-N  | MFS-12-144A-N  | MFS-13-155    | MFS-20-133A-N  | MX-12-120 EVO |
| FF-942 | MFS-6-151A-N | MFS-12-122     | MFS-12-155     | MFS-14-122    | MFS-20-135A-N  | MX-14-120     |
| FF-943 | MFS-6-153B   | MFS-12E-122    | MFS-13-122     | MFS-14-124A-N | MFS-20-192A-N  | MX-16-120     |
| FF-944 | MFS-6-162B   | MFS-12-122B-N  | MFS-13-122B-N  | MFS-14-143A-N | MFS-20-193A-N  | MX-18-120     |
| FF-946 | MFS-6-162C   | MFS-12E-122B-N | MFS-13B-122B-N | MFS-14-144A-N | MFS-22-135A-N  | MX-17-140     |
| FF-961 | MFS-7-113C-N | MFS-12-122C-N  | MFS-13-122C-N  | MFS-16-122A-N | MFS-22H-135A-N | MX-19-140     |
| FF-966 | MFS-7-153C-N | MFS-12E-122C-N | MFS-13B-122C-N | MFS-16-133A-N | MFS-22-193A-N  | MX-21-140     |
| FF-967 | MFS-7-163C-N | MFS-12-124A-N  | MFS-13-132B-N  | MFS-16-135A-N | MFS-22H-193A-N | MX-21-160     |
| FG-941 | MFS-8-113B-N | MFS-12-132B-N  | MFS-13B-132B-N | MFS-16-143A-N | RF-16-145      | MX-23-160     |
| FG-943 | MFS-8-153B-N | MFS-12E-132B-N | MFS-13-132C-N  | MFS-18-133A-N | RF-21-160      | MX-810        |
| FH-941 | MFS-8-163B-N | MFS-12-132C-N  | MFS-13B-132C-N | MFS-18-135A-N | MX-10-120      |               |
| FH-946 | MFS-10-122A  | MFS-12E-132C-N | MFS-13-143A-N  | MFS-18-192A-N | MX-10-120 EVO  |               |

### Front Drive/Non-Drive Steer Axles – 1/Unl/P&L

|                        |                         |                         |
|------------------------|-------------------------|-------------------------|
| MX-08-130-FV (FSD-08A) | MX-16-130-FV (FSD-16A)  | MX-21-130-SD (SDA-2100) |
| MX-10-130-FV (FSD-10A) | MX-18-130-FV (FSD-18A)  | MX-23-130-FV (FSD-23A)  |
| MX-12-130-FV (FSD-12A) | MX-18-130-SD (SDA-1800) | MX-23-130-SD (SDA-2300) |
| MX-13-130-FV (FSD-13A) | MX-20-130-FV (FSD-20A)  | MX-29-130-FV (FSD-29A)  |
| MX-14-130-FV (FSD-14A) | MX-21-130-FV (FSD-21A)  |                         |

### Rear Drive Axles – 1/Unl/P&L

|       |         |
|-------|---------|
| 11170 | RND-14H |
| 523   | RND-16A |

### Drivelines

|     |                    |
|-----|--------------------|
| RPL | 3/Unl/P, 1/Unl/P&L |
| 92N | 1/Unl/P&L          |
| MXL | 1/Unl/P&L          |

### Rear Drive Single Axles – 2/Unl/P&L

|                 |               |               |              |
|-----------------|---------------|---------------|--------------|
| MS-17-14X       | RS-21-160     | RS-24-160     | MS-35-380    |
| RS-17-144/145/A | RC-22-145     | RS-25-160     | RS-38-380    |
| MS-19-14X       | RC-23-160     | MS-26-616     | RC-25-160    |
| RS-19-144       | RH-23-160     | MS-26-616-SP  | RC-26-633    |
| MS-21-114       | RS-23-160     | RS-26-185/380 | MT-58-616    |
| MS-21-14X       | RC-23-161     | MS-30-616     | MT-58-616-SP |
| RS-21-145       | RS-23-161     | MS-30-616-SP  |              |
| RS-21-145/A     | RS-23-186/380 | RS-30-185/380 |              |

### Transmission – 1/Unl/P&L

516  
FAT 30

### PTO – 1/Unl/P&L

|         |         |          |
|---------|---------|----------|
| MPT-318 | MPT-526 | MPT-1702 |
| MPT-500 | MPT-531 | MPT-175  |
| MPT-510 | MPT-543 | MPT-185  |
| MPT-518 | MPT-170 | MPT-190  |



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

|               |              |                              |           |
|---------------|--------------|------------------------------|-----------|
| MT-34-14X/P   | RT-44-145/P  | RT-52-185/380 <sup>1,2</sup> | MT-70-380 |
| RT-34-144/P/A | RT-46-169    | MT-58-616                    | RZ-188    |
| MT-40-14X/P   | RT-58-160    | MT-58-616-SP                 |           |
| RT-40-145/A   | MT-52-616    | RT-58-185/380 <sup>1,2</sup> |           |
| MT-44-14X/P   | MT-52-616-SP | RT-70-380                    |           |

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam P  | 3/Unl/P   |
| Cam P <sup>3</sup>                             | 2/100/P   |
| Cam Cast Plus™                                 | 2/100/P&L |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| Q+ Drum Brake™ <sup>2</sup>                    | 2/100/P&L |
| ASA  | 3/Unl/P   |
| ASA <sup>2</sup>                               | 2/100/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake                             | 2/100/P&L |

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Rear Drive Tandem/Tridem - 3/Unl/P&L

|                                |
|--------------------------------|
| RT-40-160/P/A <sup>3</sup>     |
| RT-46-160/P/A <sup>1,3</sup>   |
| RT-46-164EH/P/A <sup>2,3</sup> |
| RT-50-160/P/A <sup>3</sup>     |
| RZ-166                         |

<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System

|                 |                  |
|-----------------|------------------|
| MTIS Components | 5/Unl/P, 1/Unl/L |
|-----------------|------------------|

## Trailer Air Suspension Systems

|  |                  |
|--|------------------|
| MTA (Trailing Arm)                       |                  |
| Major Structural Components <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Height Control Valve                     | 1/Unl/P&L        |
| Shock Absorbers                          | 2/Unl/P&L        |
| Air Springs                              | 2/Unl/P, 1/Unl/L |
| Bushings <sup>1</sup>                    | 5/Unl/P, 3/Unl/L |

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Trailer Axles

|                                |                  |
|--------------------------------|------------------|
| Beam and Brackets <sup>1</sup> | 5/Unl/P, 1/Unl/L |
| Wheel End Systems <sup>2</sup> |                  |
| Standard System <sup>3</sup>   | 1/Unl/P&L        |

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Gearboxes – 1/Unl/P&L

|          |         |         |         |         |         |
|----------|---------|---------|---------|---------|---------|
| MGX-240  | MGX-376 | MGX-448 | MGX-506 | MGX-528 | MGX-546 |
| MGX-279  | MGX-377 | MGX-456 | MGX-514 | MGX-533 | MGX-550 |
| MGX-279D | MGX-378 | MGX-478 | MGX-519 | MGX-534 |         |
| MGX-280  | MGX-380 | MGX-480 | MGX-520 | MGX-536 |         |
| MGX-285  | MGX-384 | MGX-487 | MGX-522 | MGX-537 |         |
| MGX-292  | MGX-402 | MGX-488 | MGX-524 | MGX-541 |         |
| MGX-314  | MGX-413 | MGX-505 | MGX-527 | MGX-545 |         |

## Transfer Cases – 1/Unl/P

|                                  |                          |                          |
|----------------------------------|--------------------------|--------------------------|
| MTC-4213                         | MTC-3118-CV (358)        | MTC-3209-GV (RTC-60/420) |
| MTC-4210                         | MTC-3120-FV (TC-143)     | MTC-3209-GV (RTC-60/380) |
| MTC-4208                         | MTC-3124 (T-2119)        | MTC-3209-GV (MTC-60/420) |
| MTC-4206-FV (TC-38)              | MTC-3205-GV (MTC-25/247) | MTC-3209-GV (MTC-60/380) |
| MTC-3106-FV (TC-137)             | MTC-3205-GV (MTC-25/350) | MTC-3212-CV (315 & 548B) |
| MTC-3111 (T-2111)                | MTC-3205-GV (RTC-25/350) | MTC-3312-FV (TC-270)     |
| MTC-3112-CV (529 & 548C)         | MTC-3206-FV (TC-237)     | MTC-3220-FC (TC-142)     |
| MTC-3116 (T-2111)                | MTC-3206-CS (544)        | MTC-2212-CV (306)        |
| MTC-3118-FV (TC-180 & TC-180-23) | MTC-3208-GV (RTC-50)     |                          |



# FIRE AND EMERGENCY WARRANTY INFORMATION

## Fire and Emergency Vehicles

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Command Vehicle
- Crash Fire Rescue (CFR)
- Pumper
- Rapid Intervention Vehicle (RIV)
- Tanker

## Fire and Emergency Typically Is

- Lower mileage operations (less than 20,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/Unl/P&L

|               |               |                |
|---------------|---------------|----------------|
| FL-941        | MFS-18-193A-N | MFS-22-135A-N  |
| FL-943        | MFS-20-133A-N | MFS-22H-135A-N |
| MFS-18-133A-N | MFS-20-135A-N | MFS-22-193A-N  |
| MFS-18-135A-N | MFS-20-193A-N | MFS-22H-193A-N |

## Front Drive Steer Axles – 2/Unl/P&L

|          |          |          |
|----------|----------|----------|
| MX-19140 | MX-21160 | MX-23810 |
| MX-21140 | MX-23160 |          |

## Rear Drive Single Axles – 5/Unl/P&L

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| RC-23-160 | RS-23-186 | RS-26-185 | RS-25-160 |
| RS-23-160 | RS-24-160 | RS-30-185 |           |
| RS-23-161 | RC-25-160 | RS-35-380 |           |

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 5/Unl/P&L

|             |               |                        |
|-------------|---------------|------------------------|
| MT-40-14X/P | RT-44-145/P   | MT-52-616              |
| MT-40-144/P | RT-46-160/P   | RT-52-185 <sup>1</sup> |
| RT-40-145/A | RT-46-164EH/P | MT-58-616              |
| RT-40-160/P | RT-46-169     | RT-58-185 <sup>1</sup> |
| MT-44-14X/P | RT-50-160/P   | MT-70-380              |

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

|  |           |
|--|-----------|
| Cam  | 3/Unl/P   |
| Q+ Drum Brake™                                 | 3/Unl/P&L |
| ASA  | 3/Unl/P   |
| Hubs/Cast Drums and Other Wheel-end Components | 1/Unl/P   |
| Hydraulic Disc Brakes                          | 1/Unl/P   |
| All Other Brakes                               | 1/Unl/P   |
| EX+ Air Disc Brake™                            | 2/Unl/P&L |

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

## Drivelines

|      |                  |
|------|------------------|
| RPL  | 4/400/P, 1/Unl/L |
| MXL  | 3/350/P, 1/Unl/L |
| 155N | 1/Unl/P          |
| 92N  | 1/Unl/P          |

## Transfer Cases – 1/Unl/P

|          |                   |
|----------|-------------------|
| MTC-4208 | MTC-3111 (T-2111) |
| MTC-4210 | MTC-3116 (T-2111) |
| MTC-4213 | MTC-3124 (T-2119) |



# TRANSIT BUS WARRANTY INFORMATION

## Transit Bus Vehicles

- Airport Shuttle
- City Bus
- Commuter Coach
- Shuttle Bus
- Transit Bus
- Trolley

## Transit Bus Typically Is

- Moderate mileage operation (less than 50,000 miles per year)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 5/300/P&L

FH-946                      MFS-12-155  
 FH-941<sup>1</sup>                     MFS-13-155

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Drivelines

RPL                              3/Unl/P, 1/Unl/L  
 92N                              1/Unl/P&L  
 MXL                              1/Unl/P&L

## Rear Drive Single Axles – 5/300/P&L

RS-23-160                    79163                      RS-21-160  
 RC-23-161                    RC-23-162<sup>1</sup>  
 71163                          RC-23-165<sup>1</sup>

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Tag Axles – 2/Unl/P&L

MC-14002  
 MC-16003  
 FH-946

## Brake Components

Cam Cast Plus™                      2/100/P&L  
 Q+ Drum Brake™<sup>1</sup>                    2/100/P&L  
 ASA<sup>1</sup>                                      2/100/P  
 Hubs/Cast Drums and  
 Other Wheel-end  
 Components                              1/Unl/P  
 All Other Brakes                        1/Unl/P  
 EX+ Air Disc Brake                    2/100/P&L

<sup>1</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

## Center Non-drive Axles – 5/300/P&L

MC-26000  
 71063  
 79063









# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Heavy Vehicle Systems, LLC warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number 1 and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not branded by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Product models, brands, names and trademarks depicted herein are the property of their respective owners and, except where otherwise indicated, are not in any way associated with Meritor Heavy Vehicle Systems, LLC, or any parent or affiliate, thereof.



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# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Meritor Wabco ABS Brake System Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|   |   |
|---|---|
| <b>Coverage:</b>  | The Meritor Wabco ABS brake system shall be covered by Meritor Wabco as indicated in the attached Meritor Wabco warranty coverage description |
| <b>Warranty Begins:</b>   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| <b>Warranty Period Ends After:</b>                                    | Three (3) Year  |
| <b>Conditions and Exclusions:</b><br><br>See Also Paragraphs 2 thru 4 | The exclusions listed in the attached Meritor Wabco warranty description shall apply.   |

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.



# **MERITOR WABCO**

*Safety Strong. Efficiency Smart.*

**Warranty**  
**Model Year 2018 Vehicles**

## SIMPLER IS BETTER

Warranty coverage is essential to protecting your investment. But understanding the full details of your coverage can be challenging. This straightforward approach allows you, our valued customer, to better understand how your specific vehicle applications will be covered in your region. Our component warranty coverage is provided according to vocation/usage categories listed below.

- Linehaul covers high mileage operation (over 60,000 miles/year) on well maintained major highways of concrete or asphalt construction.
- General Service covers moderate mileage operations (less than 60,000 miles/year) on well maintained public roads (less than 10 percent off-road) typically with less than three (3) stops per mile.
- Heavy Service (Vocational) covers vehicles with more than 10 percent off-road OR moderate to frequent starts/stops typically with more than three (3) stops per mile.
- Off-Highway Service covers lower mileage operations. Vehicles are not typically licensed for highway use.

# CONTENTS

- Linehaul Service..... 4
- General Service..... 4
- Heavy Service ..... 5
- Industrial/Off-Highway Service ..... 6
- Terms and Conditions ..... 7

## How to Read Warranty Coverage (Example)

| Number of Years | Mileage (in thousands)<br>Unl=Unlimited | P=Parts Only<br>P&L=Parts & Labor |
|-----------------|---|-----------------------------------|
| 3               | 300                                     | P                                 |



## HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

### Heavy Service Vehicles

- Airport Rescue Fire (ARF)
- Airport Shuttle
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- City Bus
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Crash Fire Rescue (CFR)
- Mixer
- Demolition
- Drill Rig
- Dump
- Emergency Service
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Newspaper Delivery
- Package Delivery
- Pick-up and Delivery
- Rapid Intervention Vehicle (RIV)
- Rear Loader
- Recycling Truck
- Residential Pick-Up/Waste
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Transit Bus
- Trolley
- Utility Truck
- Winch Truck

### Heavy Service Typically Is

- On/Off road vocations (10% or more off-road) OR
- Moderate to frequent starts/stops typically more than three (3) stops per mile

### Meritor WABCO Components<sup>1</sup>

|  |           |
|--|-----------|
| ABS (Anti-Lock Braking System) Air       | 3/300/P&L |
| ABS (Anti-Lock Braking System) Hydraulic | 2/200/P&L |
| Electronic Braking System (EBS)          | 3/300/P&L |
| Electronic Stability Control (ESC)       | 3/300/P&L |
| Roll Stability Control (RSC)             | 3/300/P&L |
| Air Dryers (ALL)                         | 1/100/P&L |
| Leveling Valves                          | 1/100/P&L |
| Air Brake Valves                         | 1/100/P&L |
| Emission Valves (SCR)                    | 2/200/P&L |
| Clutch Controls                          | 2/200/P&L |
| Air Compressors (ALL) <sup>2</sup>       | 1/100/P&L |
| OnGuard™                                 | 3/300/P&L |
| OnGuardACTIVE™                           | 3/300/P&L |
| OnLane™ Lane Departure Warning           | 3/300/P&L |
| Blind Spot Detection                     | 3/300/P&L |
| OptiRide™                                | 2/200/P&L |
| Trailer Roll Stability Support (RSS)     | 3/300/P&L |
| Trailer Control Line Filter <sup>3</sup> | 1/100/P&L |
| Trailer ABS Valve <sup>3</sup>           | 3/300/P&L |

<sup>1</sup> WABCO and Meritor WABCO branded components.

<sup>2</sup> WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

<sup>3</sup> An extended warranty of 4/400/P will be applied when a Meritor WABCO Trailer Control Line Filter is used in combination with a Meritor WABCO Trailer ABS valve.



# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered product due to the following: (1) damage to the product or its component parts caused by incorrect use, installation, maintenance or repair, including without limitation (a) improper fit of mating components or brackets, (b) damaged threads, (c) cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (d) damaged sensors from removal when seized in block, or associated with sensor adjustments/alignments, and (e) damage resulting from the use or installation of non-genuine Meritor WABCO components or materials; (2) damage to the product, its component parts, or diminished product or component part performance due to incorrect operation, deviation from approved conditions or misapplication; (3) any unauthorized disassembly of the product or its component parts including without limitation (a) obliterated, defaced or missing WABCO or Meritor WABCO name plate, serial numbers or label identifying the device as a Meritor WABCO product or WABCO component, (b) changes to sealed adjusting screws, and (c) opening or attempted repair of non-serviceable components; (4) malfunction of the component due to internal contamination out of the vehicle system including without limitation (a) water and other contamination damage that is due to the use of a non-genuine air dryer cartridge or (b) valve failures due to contamination in air system, (5) complaints associated with noise, (6) damage resulting from corrosion (including oxidation of electrical devices and connections).

#### Air Dryers

Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.

#### Air System Components

Normal wear items; Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals.

### ABS, Electronic Stability Control (ESC), Roll Stability Control (RSC), OptiRide™, OnGuard™ and OnLane™, collectively “Electronics”

Failure of electronic components due to overvoltage condition, improper grounding, electrostatic discharge (ESD), improper shielding, electromagnetic interference (EMI), or other wiring or installation issues.

Malfunctions and failure codes caused by other electronic subsystem failures (data bus, engine, transmission, dashboard, etc.)

### Hydraulic Components

For certain components, brake fluid DOT3 or DOT4 is used as the operating medium. Use of any other fluid will void all warranties associated with that component. For hydraulic braking applications the brake fluid is considered a maintenance item. Maintenance intervals are listed in TB-1367.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.

Products purchased on an incomplete vehicle (glider) are limited to one year, 1/Unl/P.

For vehicles that operate full- or part-time outside of the United States and Canada, a 1-Year/Unlimited Miles parts only (1/Unl/P) will apply.

### TOOLBOX™ Software

Proper diagnostics of Meritor WABCO Electronics may require the latest version of TOOLBOX™. Additional labor due to use of an outdated version of TOOLBOX™. TOOLBOX™ software, and/or the time to purchase or install latest version of TOOLBOX™ are not covered under product warranty.



## TERMS AND CONDITIONS

### (1) What is Covered by this Commercial Warranty?

Meritor WABCO Vehicle Control Systems warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment will be free from defects in material and workmanship. This warranty coverage begins from the original in-service date to the limits provided and runs concurrently with any warranties provided by OEMs and/or any service contracts that cover the components listed in this publication, if any. If the components listed in this publication are covered by an OEM warranty and/or service contract, then the OEM's warranty and/or service contract shall supersede Meritor WABCO's warranty and Owner shall comply with all OEM's warranty and/or service contract requirements for claims under such OEM's warranty and/or service contract until those agreements expire. Once those agreements expire and provided the Meritor WABCO warranty has not expired under the terms stated above, the Meritor WABCO warranty would be in effect until its expiration date.

Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed previously in this publication. Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Additional diagnostic time due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are the responsibility of the authorized Meritor WABCO service location and are not covered under product warranty. Components installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

### (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor WABCO through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor WABCO components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor WABCO directly. Failure to notify Meritor WABCO of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor WABCO as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor WABCO or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor WABCO's warranty requires that the application of products be properly approved pursuant to OEM and Meritor WABCO, approvals.

### (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

### (4) What is not Covered by this Warranty?

In addition to the items listed on page 7, this warranty does not cover normal wear and tear, or service items; nor does it cover a component that fails, malfunctions or is damaged as a result of

(a) improper handling, storage, installation, adjustment, repair or modification including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor WABCO, (b) accident, fire or other casualty, natural disaster, road debris, negligence, misuse, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the brake system capacity), or (c) improper or insufficient maintenance (including deviation from maintenance intervals, approved lubricants, or lube levels). This warranty does not cover any component or part that is not sold by Meritor WABCO.

### (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor WABCO's option. Meritor WABCO reserves the right to require that all applicable covered components are available and/or returned to Meritor WABCO for review and evaluation.

### (6) DISCLAIMER OF WARRANTY.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. SOME STATES LIMIT OR DO NOT ALLOW THE DISCLAIMER OF IMPLIED OR OTHER WARRANTIES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (7) LIMITATION OF REMEDIES.

IN NO EVENT SHALL MERITOR WABCO BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES OF ANY KIND OR UNDER ANY LEGAL THEORY, INCLUDING, BUT NOT LIMITED TO, TOWING, DOWNTIME, LOST PRODUCTIVITY, CARGO DAMAGE, TAXES, LOST PROFITS, COSTS OF PROCUREMENT OF A SUBSTITUTE COMPONENT OR ANY OTHER LOSSES OR COSTS RESULTING FROM A COVERED COMPONENT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (8) TIME LIMIT ON COMMENCING LEGAL ACTION.

ANY LEGAL ACTION OR CLAIM ARISING FROM OR RELATED TO THIS WARRANTY, IN CONTRACT OR OTHERWISE, MUST BE COMMENCED WITHIN ONE YEAR FROM THE ACCRUAL OF THAT CAUSE OF ACTION, OR BE BARRED FOREVER.

### (9) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor WABCO or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor WABCO service location. The dealer will inspect the vehicle and contact Meritor WABCO for an evaluation of the claim. When authorized by Meritor WABCO, the dealer will repair or replace during the term of this warranty any defective Meritor WABCO component covered by this warranty.

### (10) Entire Agreement.

This is the entire agreement between Meritor WABCO and the Owner about warranty and no Meritor, Meritor WABCO employee, or dealer is authorized to make any additional warranty on behalf of Meritor WABCO unless in writing and signed by an authorized representative of Meritor WABCO.

For more information on  
Meritor WABCO Warranty, call  
our OnTrac Customer Service team  
at 866-OnTrac1 (866-668-7221)  
or visit [meritorwabco.com](http://meritorwabco.com).



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity

### Custom Cab

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | The Pierce Custom Cab shall be free from structural failures caused by defects in material and workmanship  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Ten (10) Years<br>- or -<br>100,000 Miles   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty applies only to the cab tubular support and mounting structures and other structural components of the cab of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.<br><br>This warranty does not apply to damage caused by corrosion. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Cab

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| Coverage:  | Exterior surfaces of the cab painted by Pierce shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.   |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).  |
| Warranty Period Ends After:                                    | Ten (10) Years   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | <p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b><br/> 0-72 months 100%<br/> 73-96 months 50%<br/> 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b><br/> 0-36 months 100%<br/> 37-84 months 50%<br/> 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b><br/> 0-36 months 100%<br/> 37-48 months 50%<br/> 49-72 months 25%<br/> 73-120 months 10%</p> <p><b>Corrosion Perforation</b><br/> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include:<br/> (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).<br/> (b) UV paint fade.<br/> (c) Any cab not manufactured by Pierce.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship

### Command Zone Electronics

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Command Zone control modules shall be free from failures caused by defects in material and workmanship  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Five (5) Years  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This limited warranty applies to all of the control modules for the Command Zone system, including the full color graphic displays. Related wire harnesses, cables and connectors are not covered under this limited warranty and are instead covered under the Pierce One Year Basic Apparatus Limited Warranty. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





# Fire and Rescue Apparatus

## 54 Months Material and Workmanship

### Camera System

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| <b>Coverage:</b>   | <b>This limited warranty covers repairs to correct any defect related to materials or workmanship of the Sharpvision camera system installed on the apparatus occurring during the warranty period.</b> |
| <b>Warranty Begins:</b>  | <b>The date of delivery.</b>  |
| <b>Warranty Period Ends After:</b>   | <b>Fifty - Four (54) months</b>   |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <b>This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.</b>                           |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship

### Pierce 12V LED Strip Light

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| <b>Coverage:</b>   | This limited warranty covers repairs to correct any defect related to materials or workmanship of the Pierce 12V LED strip lights installed on the apparatus occurring during the warranty period. |
| <b>Warranty Begins:</b>  | The date of the original purchase invoice (issued when the product ships from the factory).  |
| <b>Warranty Period Ends After:</b>   | Ten (10) Year  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.                             |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

## NEW PRODUCT WARRANTY



**PARTICIPATING OEM SALES  
DISTRIBUTOR SALES**

### LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Emergency Vehicle in accordance with the following terms, conditions, and limitations.

#### WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Emergency Vehicle and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission’s option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section “APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE.”
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

**Demonstration Service** - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

#### APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

| APPLICABLE MODELS   | WARRANTY LIMITATIONS<br>(Whichever occurs first) |                                     | ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER |           |
|---|--|-------------------------------------|--|-----------|
|   | Months   | Transmission Miles<br>Or Kilometers | Parts  | Labor     |
| MT, MD<br>3000, 3200, 3500, 3700  | 0-24   | No Limit                            | No Charge                                    | No Charge |
| HT with Hydraulic Controls  | 0-24   | No Limit                            | No Charge                                    | No Charge |
| AT, 1000 Series™, 2000 Series™,<br>2400 Series™   | 0-36   | No Limit                            | No Charge                                    | No Charge |
| HT with Electronic Controls   | 0-60   | No Limit                            | No Charge                                    | No Charge |
| HD<br>1000 EVS, 2100 EVS, 2200 EVS<br>2350 EVS, 2500 EVS, 2550 EVS,<br>3000 EVS, 3500 EVS, 4000,<br>4000 EVS, 4500, 4500 EVS, 4700,<br>4700 EVS, 4800, 4800 EVS | 0-60   | No Limit                            | No Charge                                    | No Charge |



## WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
  - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
  - Misuse of the vehicle;
  - Installation into unapproved applications and installations;
  - Alterations or modification of the transmission or the vehicle, and
  - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
  - Anything other than defects in Allison Transmission material or workmanship

**NOTE:** This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
  - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
  - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

## OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions.

**ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.\*\***

\*\* Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

## OTHER TERMS APPLICABLE TO OTHER END-USERS

**THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.**

## QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission, Inc.  
P.O. Box 894  
Indianapolis, IN 46206-0894  
Attention: Warranty Administration PF-9



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship - Transmission Oil Cooler Three (3) Year Collateral Damage Coverage

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| <b>Coverage:</b>   | <b>The transmission cooler shall be free from component or structural failures caused by defects in material and/or workmanship. Collateral damage up to \$10,000 per occurrence is available for the first three (3) years.</b>   |
| <b>Warranty Begins:</b>  | <b>The date of delivery to the first retail purchaser.</b>   |
| <b>Warranty Period Ends After:</b>   | <b>Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage</b>  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> <p>Towing is covered to the nearest distributor or authorized dealer only when necessary to prevent further damage to your transmission.</p> <p>Labor costs for the removal and reinstallation of goods may be covered when necessary to make repairs. Please contact your OEM for authorization.</p> <p>Replacement of cooler during the warranty period is limited to 100% of reasonable labor costs up to a maximum of \$700 to remove, replace, or repair the oil cooler.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

 **UNITED PLASTIC FABRICATING, INC.**  
**WARRANTY**  
**FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™**

## LIFETIME SERVICE WARRANTY

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines. Failure to do so can void the warranty.

Every UPF Tank is inspected and tested before leaving our facility. Should your UPF Tank require service, please notify UPF via email, fax, in writing or by calling UPF at 1-978-975-4520. Please provide the serial number, a description of the service request, the location along with the phone number and name of the contact person. Our goal is to have scheduled work completed within a reasonable time period.

Under a valid warranty claim, UPF will cover the cost to repair the UPF Tank including the customary and reasonable costs to make the tank accessible such as the removal and reinstallation of the tank if authorized in advance (pre-approved) by UPF. The warranty will not cover tanks that have been improperly installed, operated, misused, abused, or modified from its intended or designed use. Serial number must not have been altered, defaced or removed. Tanks that are not stored or installed properly which results in the tank suffering UV damage will not be covered by this agreement.

Should UPF determine that the service claim is valid under this warranty for a tank located outside of the United States and Canada, UPF will assume the costs for labor and material for the warranty repair as described above plus all travel costs to the U.S. port of embarkation. Costs for airline travel outside of the U.S. and Canada will not be the responsibility of UPF.

In the event the tank shall become stationed in an area of the world that is considered to be a war zone or where unsafe conditions exist for the safe passage of United States Nationals, as reported by the United States Department of State, (<http://www.state.gov>), and a request to perform service or warranty repairs, UPF reserves the right to refuse to honor such requests. It is the purchaser's responsibility to relocate the tank to an area where such repairs can be performed without undue risk to UPF employees or their designee. UPF will make every reasonable effort to support our products through alternative means.

For Ellipse™ elliptical tanks, a separate five year warranty provided by the subcontractor is applied to the sub-frames, chute linings (rubber isolation strips) and metal components. The stainless steel wrap provided by UPF shall be warranted by the subcontractor performing the wrap installation in accordance with their warranty in place at the time of the installation. UPF will not be liable for any warranty costs associated with the wrap, sub-frames, chute linings (rubber isolation strips) and metal components but will assist with all claims on behalf of its customer.

For PolySide® wetsided tanks and Integrator™ Tank/Body units, all polypropylene components related to the tank shall carry the standard UPF lifetime



**UNITED PLASTIC FABRICATING, INC.**

**WARRANTY**  
**FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™**

service warranty. Other polypropylene components, including but not limited to compartments, wheel wells, fenders and other body related components shall be warranted by UPF for a period of ten years. The warranty for the PolySide® and Integrator™ units excludes paint or hardware, which shall be covered by the manufacturer of the paint/hardware.

All UPF tanks 50 gallons or less utilized for non-fire applications and installed on specialty vehicles such as ATVs, trailers, boats, etc. are covered under a separate warranty policy available from UPF. Further, UPF Protector™ foam and water trailers are warranted under a separate warranty policy available from UPF.

This UPF warranty is transferable within the United States only with prior written approval by UPF (except an original apparatus manufacturer may assign this warranty to the first titled owner/lessee of the apparatus).

**UPF will NOT reimburse any unnecessary work and/or work that has not been pre-approved. Any and all third party charges must be pre-authorized and approved in writing by UPF prior to commencing the work. Any unauthorized third party repairs, alterations, actions or modifications will not be covered and can void the warranty. UPF will be the sole determining authority as to whether a service claim will be valid and covered under this warranty.**

In no event will UPF be liable for an amount in excess of the purchase price of the booster/foam tank at the time of manufacture or for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of failure of its product. Loss of contents (water, foam, etc.) shall not be the responsibility of UPF. Further, UPF is not responsible for costs associated with service repairs to chassis, sub-frames, bodies, valves, dumps, hoses, pressure vacuum vents, and other components (i.e. liquid level transducers, etc.). Further, UPF will not cover the cost for travel of the vehicle to and from a repair facility.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly cancelled. UPF neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation or incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.

**THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATION OR LIABILITIES ON THE PART OF UPF.**



# BULLETIN

**TO: All Dealer Service Representatives**  
**From: Kevin Hanegraaf**  
**DATE: January 4, 2010**  
**RE: UPF Tank Warranty Policy – Truck in Accident**  
**Service Topic #292**



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To keep the UPF tank warranty valid on trucks that have been involved in a vehicular accident, it is UPF's policy that the customer must remove the tank from the truck and send it back to one of UPF's facilities for inspection. In the event that this does not take place, the warranty will be considered null and void.

The customer must remove and send the tank back to UPF for inspection in order to maintain the original warranty coverage, at which time it will be:

- Filled with water
- Visually inspected
- Ultraviolet spark tested on articulating test stand in the dark
- Recommendation for repairs if necessary provided by UPF
- Fully evaluated and repaired by UPF

If your customer chooses to leave the tank on the truck and wants a technician to inspect and/or repair the tank in the field, then **the warranty is no longer in effect.** This direction is upheld by UPF because the technician cannot inspect the entire tank when it is still installed on the truck.

**Note:** This memo is intended to relay the information Pierce has received on UPF's tank warranty for trucks that are in a vehicular accident. In the event of an actual claim, we direct you to consult with UPF's service Manager Maura Watts (800-638-8265 x253)





# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity Apparatus Body

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | The apparatus body shall be free from structural failures caused by defects in material and workmanship   |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Ten (10) Years<br>- or -<br>100,000 Miles   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty applies only to the body tubular support and mounting structures and other structural components of the body of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.<br><br>This warranty does not apply to damage caused by corrosion. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



**Pierce Warranty Statement for Gortite Roll Up Doors Rev 2/24/2011**

All mechanical components of the door shall be warranted to be free from defects in materials and workmanship for the lifetime of the vehicle. All parts covered under this warranty shall be to the original owner.

A&A manufacturing warrants that painted doors shall be free of blistering, peeling, bubbling, or any other adhesion defect caused by defective manufacturing methods or paint material selection. The time period for the coverage shall be 6 years from date of door shipment to Pierce. Satin anodized finish doors shall be warranted for 6 years against corrosion defects from date of door shipment to Pierce. Replacement of decals/Scotchlite is not covered.

The maximum amount A&A will reimburse for labor is \$60.00 per hour and the maximum amount of time allowed for repair is as follows:

|                           |         |
|---------------------------|---------|
| Door                      | 1.0 Hr. |
| Slat Replacement          | 1.0 Hr. |
| Pennant Plate Replacement | 1.0 Hr. |
| Roller Replacement        | .5 Hr.  |
| Seal Replacement          | .5 Hr.  |
| Switch/Magnet Replacement | 1.0 Hr. |
| Travel Time               | 4.0 Hr. |

# Waterous Seven-Year Limited Warranty

WATEROUS warrants, to the original Buyer only, that products manufactured by WATEROUS will be free from defects in material and workmanship under normal use and service for a period of seven (7) years from the date the product is first placed in service, or seven and one-half (7-1/2) years from the date of shipment by WATEROUS, whichever period shall be the first to expire; provided the Buyer notifies WATEROUS, in writing, of the defect in said product within the warranty period, and said product is found by WATEROUS to be nonconforming with the aforesaid warranty. When required in writing by WATEROUS, defective products must be promptly returned by Buyer to WATEROUS at WATEROUS' plant at South St. Paul, Minnesota, or at such other place as may be specified by WATEROUS, with transportation and other charges prepaid. A Returned Material Authorization (RMA) is required for all products and parts and may be requested by phone, fax, email, or mail. The aforesaid warranty excludes any responsibility or liability of WATEROUS for:

- (a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes, use in non-firefighting applications, or improper maintenance, or attributable to written specifications or instructions furnished by Buyer;
- (b) defects in products manufactured by others and furnished by WATEROUS hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, WATEROUS will assign to Buyer, if requested by Buyer;
- (c) any product or part, altered, modified, serviced or repaired other than by WATEROUS, without its prior written consent;
- (d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation; and
- (e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, mechanical seals, etc.).

**ALL OTHER WARRANTIES ARE EXCLUDED, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER CAUSE OF ACTION, SHALL WATEROUS BE LIABLE FOR ANY PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR PERSONAL INJURY OR PROPERTY DAMAGES.**

The exclusive remedy of Buyer and the sole liability of WATEROUS, whether based on contract, warranty, tort or any other basis of recovery whatsoever, is expressly limited at the election of WATEROUS to:

- (a) the replacement at the agreed point of delivery of any product or part, which upon inspection by WATEROUS or its duly authorized representative, is found not to conform to the limited warranty set forth above, or
- (b) the repair of such product or part, or
- (c) the refund or crediting to Buyer of the net sales price of the defective product or part.

**BUYER'S REMEDIES CONTAINED HEREIN ARE EXCLUSIVE OF ANY OTHER REMEDY OTHERWISE AVAILABLE TO BUYER.**

Waterous Company  
125 Hardman Avenue South  
South St. Paul, MN 55075 USA  
[www.waterousco.com](http://www.waterousco.com)







# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship Stainless Steel Piping Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Stainless steel piping shall be free from structural failures caused by defects in material and workmanship, or perforation caused by corrosion.  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Ten (10) Years<br>- or -<br>100,000 Miles   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the stainless steel piping or components which Pierce determines to have failed due to defective material and workmanship, or perforation caused by corrosion.<br><br>This warranty does not cover the use of fluoroprotein (FP) type foam. The sodium chloride within FP foam can cause long-term damage to system components if not thoroughly flushed immediately after use. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship Foam System & Five (5) Year Material and Workmanship Control Head Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| Coverage:  | Limited warranty 1 year parts and labor for the foam system and 5 years parts and labor for the control head.  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).  |
| Warranty Period Ends After:                                    | One (1) Year & Five (5) Year   |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | <p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Twenty (20) Year Structural Integrity Pierce Aerial Device

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Each new Pierce Aerial Device shall be free from defects in material and workmanship.<br><br>Aerial Device Models Covered by this warranty include:<br>Aerial Platforms<br>Aerial Ladders<br>SkyBoom  |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                    | Twenty (20) Years<br>- or -<br>100,000 Miles  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty applies only to the torque box, turntable, aerial sections and other structural components of the aerial device, as identified in the Pierce specifications for the aerial device. This warranty shall be void if, or to the extent that the aerial device is not maintained in strict compliance with NFPA Standard 1911 in effect at time of sale, including such periodic inspections and testing by qualified third parties as are required by that Standard as it may be in effect from time to time. Proof of such compliance shall accompany any claims under this warranty. Third party testing agencies known to Pierce to be qualified for such purposes may be obtained from the Pierce Customer Service Department<br><br>This warranty does not apply to damage caused by corrosion. |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



## AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD  
ALBURTIS, PA 18011-0451  
Phone: 610-966-3115  
Fax: 610-965-6313

### \* STANDARD FIVE YEAR WARRANTY \*

(standard warranty is in effect for parts shipped after 4/15/10)

#### Three Function Swivel

**A. PRESHIPMENT TESTING** The Three Function Swivel fabricated by Amity which is exposed to pressure during normal use is subject to final inspection using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.
2. Hydraulic applications will be tested to 4000 PSI. System operating pressure in application to be 3000 PSI maximum.
3. Dielectric and Continuity Test all circuits. 30 Amp max current loading.

**B. THREE FUNCTION SWIVEL MAINTENANCE** – Our Three Function Swivel has been fully tested at assembly. Under no circumstances is there to be any maintenance performed internally or externally to the Three Function Swivel by Purchaser or any other third party other than an authorized representative of or Amity itself. The Three Function Swivel is sealed and must remain so. The Three Function Swivel is designed for a long maintenance free life. Should any problems occur or replacement be necessary, first contact Amity. There is to be no field maintenance performed on the Three Function Swivel .

**C. MOUNTING REQUIREMENTS** – The following are the mounting requirements for the Three Function Swivel:

1. Mounting points and methods are to be determined at the initial design stage. All drawings and applicable documentation must be signed off by both parties and filed for future reference. No deviation to the approved mounting is allowed without approval from Amity.
2. The Three Function Swivel is to be mounted concentric to the center of the turntable bearing.
3. All inlet and outlet plumbing to conform to swivel mounting, under no circumstances is the Three Function Swivel to be positioned to match connections. This will avoid putting excessive loads on the Three Function Swivel. All tubing or piping to be supported by means other than the Three Function Swivel.

#### **D. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.**

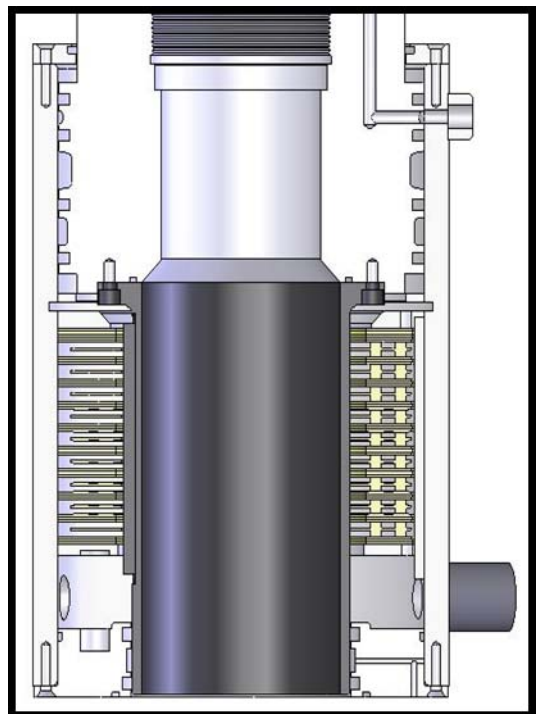
1. The Three Function Swivel is warranted to be free of defects in labor and/or materials for a period of five (5) years from the Date of Service. For purposes here, "Date of Service" shall mean the date when the Three Function Swivel, or the unit to which the Three Function Swivel is incorporated, passes final Underwriters Laboratory testing, or similarly compliant testing, and is certified for service. Evidence of such Date of Service shall be required in connection with any warranty claim by Purchaser.
2. The Three Function Swivel shall be repaired or replaced at the sole option and expense of the Amity provided the Three Function Swivel alleged to be defective was used for its intended normal use of operation and subject to the following qualifications and limitations.
3. Any alteration of the Three Function Swivel without consent from Amity is strictly forbidden and shall void warranty.
4. No welding shall be performed on finished Three Function Swivel.
5. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water or hydraulic systems such as, but not limited to stones, sand or metal chips.
6. Amity assumes responsibility for our Three Function Swivel, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our Three Function Swivel unless it agrees in writing to assume such responsibility.
7. Unless otherwise approved in writing by the Amity all returns of defective Three Function Swivels (or allegedly defective Three Function Swivels) are at Purchaser's expense and must include a RGA number issued by the Amity.

8. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
9. Amity will not be held liable for damage incurred during shipment.
10. No responsibility shall be assumed for misuse or improper mounting, unreasonably use or abuse of the Three Function Swivel and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

**THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF FIVE YEARS IS FROM THE DATE OF SERVICE WITH THE UNDERSTANDING IT IS INSTALLED WITHIN A REASONABLE TIME PERIOD.**

Dated: \_\_\_\_\_, 20\_\_







# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship Aerial Hydraulic System Components

## Three (3) Year Material and Workmanship Aerial Hydraulic System Seals

# Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |  |
|--|--|
| <b>Coverage:</b>   | <b>The aerial hydraulic system components and seals shall be free from component or structural failures caused by defects in material and/or workmanship.</b>  |
| <b>Warranty Begins:</b>  | <b>The date of the original purchase invoice (issued when the product ships from the factory).</b>   |
| <b>Warranty Period Ends After:</b>   | <b>Five (5) Years and Three (3) Years</b>  |
| <b>Conditions and Exclusions:</b><br><br><b>See Also Paragraphs 2 thru 4</b> | <b>Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the hydraulic lines, fittings, valves, seals, cylinders, filters, pumps, hydraulic motors, rotary actuators, or components which Pierce determines to have failed due to defective material and workmanship.</b><br><br><b>This warranty shall not apply unless the aerial device is inspected in accordance with NFPA 1911 Standard for Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus and the applicable Pierce Operator and Maintenance Manuals.</b> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



## AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD  
ALBURTIS, PA 18011-0451  
Phone: 610-966-3115  
Fax: 610-965-6313

### \* STANDARD TEN YEAR WARRANTY \*

(standard warranty is in effect for parts shipped after 4/15/10)

#### Telescopic Waterways

**A. PRESHIPMENT TESTING** All waterways fabricated by Amity are final inspected using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.

#### **B. COMPONENTS DESCRIPTION AND MAINTENANCE**

1. All components are thoroughly greased at assembly. Since internally lubricated seals are used, regular greasing is not required. We recommend components not be greased at installation.
2. Slip Tube Assemblies may be greased at the Amity's regularly scheduled Aerial Inspections. The seals in the Slip Tube Assemblies are self-lubricating, so greasing is not mandatory. We do recommend a visual inspection of the Slip Tube Assembly while it is fully extended after initial installation, from that point on we recommend inspection every ten hours of aerial operation. If any deposits of aluminum appear, they are to be rubbed off using a Teflon scouring pad. Slip Tube Assemblies are designed to give long maintenance free service; however, like any product, problems may occur and periodic visual inspections will aid in determining if a potential problem exists and warrants a call to us. Care must be taken to keep debris off of extended tubes. We recommend wiping tubes with light oil (10 weight) or hydraulic oil after use, if tubes appear to have contamination on them. Under no circumstance are tubes to be cleaned with lacquer thinner, or any other solvent.

#### **C. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.**

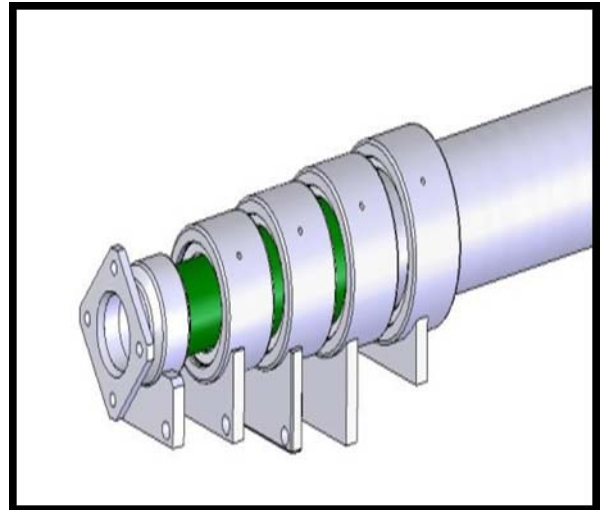
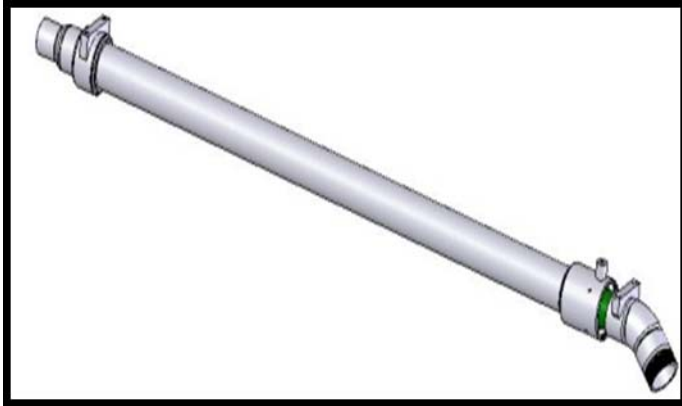
1. Products are warranted to be free of defects in labor and/or materials for a period of ten years from the date of purchase from the Amity and shall be repaired or replaced at the sole option and expense of the Amity provided the products alleged to be defective was used for its intended normal use operation and subject to the following qualifications and limitations.
2. Any alteration of product without consent from Amity is strictly forbidden and shall void warranty.
3. No welding shall be performed on finished product.
4. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water system such as, but not limited to stones, sand or metal chips.
5. Amity assumes responsibility for our product, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our product unless it agrees in writing to assume such responsibility.
6. Unless otherwise approved in writing by the Amity all returns of defective (or allegedly defective products) are at Purchaser's expense and must include a RGA number issued by the Amity.
7. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
8. Amity will not be held liable for damage incurred during shipment.
9. No responsibility shall be assumed for misuse or improper mounting, unreasonable use or abuse of the Product and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

**THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR**

FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF TEN YEARS COMMENCES UPON INSTALLATION INTO FINAL ASSEMBLY WITH THE UNDERSTANDING IT IS INSTALLED WITHIN SIX MONTHS OF PURCHASE.

Dated: \_\_\_\_\_, 20\_\_







# Fire and Rescue Apparatus

## Four (4) Year Pro-Rated Paint and Corrosion

### Aerial Device

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|  |   |
|--|---|
| Coverage:  | Aerial device shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection for exterior surfaces.   |
| Warranty Begins:   | The date of the original purchase invoice (issued when the product ships from the factory).   |
| Warranty Period Ends After:                                | Four (4) Years  |
| Conditions and Exclusions:<br>See Also Paragraphs 2 thru 4 | <p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b><br/>0-24 months 100%<br/>25-48 months 50%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b><br/>0-24 months 100%<br/>25-48 months 50%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b><br/>0-24 months 100%<br/>25-48 months 50%</p> <p><b>Corrosion Perforation</b><br/>0-24 months 100%<br/>25-48 months 50%</p> <p>This limited warranty applies only to exterior paint.</p> <p>Items not covered by this warranty include:<br/>(a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).<br/>(b) UV paint fade.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



## MANUFACTURER'S LIMITED WARRANTY - HYDRAULIC GENERATORS

### STANDARD

Harrison Hydra-Gen® (Seller) extends to the original purchaser (Buyer) of goods for use (whether it be an OEM, dealer, re-seller, or end-user) the following warranty covering the Harrison Hydra-Gen® Generator System, subject to the qualifications indicated. Harrison Hydra-Gen® Generator Systems shall consist of a Harrison generator tray assembly and its' components, a Harrison hydraulic pump assembly, and a Harrison supplied meter assembly; unless otherwise specified in below guidelines.

Harrison Hydra-Gen® warrants the original purchaser that the Generator System manufactured or supplied by Harrison Hydra-Gen® will be free from defects in materials and workmanship, provided such goods are:

1. Installed, operated and maintained in accordance with the Harrison Hydra-Gen® owner's manual, and/or written installation addendums.
2. Each new application has been reviewed and approved by the Harrison Hydra-Gen® Application Engineering Group.

### PERIOD OF WARRANTY

\*Two (2) years or 2000 hours of usage, whichever comes first, from the date the product is shipped from Harrison to the Installer.

**\*The END USER must complete and return to Harrison Hydra-Gen® the Harrison Hydra-Gen® Warranty Registration Card, Form WR-1, provided in the generator manual and provided online @ [www.harrisonhydragen.com](http://www.harrisonhydragen.com), within 45 days of delivery.**

**Warranty includes all parts and labor.** In addition, maintenance items that are contaminated or damaged by a proven warrantable failure are covered in years 1-2, and Labor time up to 4 hours, travel time up to 2.5 hours, and mileage up to 100 miles for warranty related repairs are covered.



Repair or replacement parts are warranted for ninety (90) days from date of purchase, excluding labor and travel expenses. Any part repaired or replaced during the warranty period assumes the remainder of the warranty or ninety (90) days, whichever is greater.

Only components supplied by Harrison Hydra-Gen® are covered under this warranty.

There is no other express warranty. Implied warranties, including merchantability and fitness for a particular purpose, are limited to periods set forth above and to the extent permitted by law. Any and all implied warranties are excluded. In no event is Harrison Hydra-Gen® liable for incidental or consequential damages.

The Buyer (OEM, dealer, re-seller, or end-user) must notify Harrison Hydra-Gen®, an Authorized Distributor, or a designated Harrison Hydra-Gen® Service Representative, **in writing**, within thirty (30) calendar days after goods or parts failed to meet this warranty.

The sole liability of Harrison Hydra-Gen® and the Buyer's sole remedy for a failure of goods under this warranty and for any and all other claims arising out of the purchase and use of the goods, including negligence on the part of the manufacturer, shall be limited to the repair or replacement of the product, at the option of Harrison Hydra-Gen®, of the parts that do not conform to this warranty, provided that the product or parts are returned to the Harrison Hydra-Gen® manufacturing facility.

A Returned Goods Authorization (RGA) is required for all products and parts being returned, and may be requested by phone, fax, email, or mail.

Failure to make timely delivery to Harrison Hydra-Gen® of the goods claimed to be defective shall void any warranty.

Unless previous written agreements have been made between the Buyer and Harrison Hydra-Gen®, the Buyer shall be responsible for all freight and shipping charges in connection with the delivery of the goods claimed to be defective, to Harrison Hydra-Gen® at its manufacturing facility, and the return of repaired or replacement goods to the Buyer.

If Harrison Hydra-Gen® determines that no warranty coverage is available for goods claimed to be defective, whether determination is based on the warranty being voided, the product failure

being due to a cause not covered by the warranty, the failure to make a timely and proper warranty claim, or otherwise, the Buyer shall have the option of either:

1. Having the goods not repaired and returned to the Buyer, freight collect.
2. Having the goods repaired, If Harrison Hydra-Gen® determines that the product is repairable, and returned to the Buyer, freight collect. The Buyer will be responsible for all costs associated with the repair and testing of the goods and shall authorize Harrison Hydra-Gen®, in writing, to have the goods repaired and tested by Harrison Hydra-Gen®.

The owner is obligated to operate and maintain the goods in accordance with the recommendations published by Harrison Hydra-Gen® in the owner's manual. The owner is responsible for the costs associated with such maintenance and any adjustments that may be required.

This warranty shall not apply to:

1. Damages or defects caused by normal wear, accident, misuse, abuse, abnormal operating conditions, negligence, corrosion, accident causes, or attributable to written specifications or instructions furnished by the installer.
2. Damages or defects caused by improper maintenance in accordance with the Harrison Hydra-Gen® product manuals and operating guidelines.
3. Damages caused by operator error.
4. Damages or defects caused by improper installation.
5. Damages or defects caused by inadequate water drainage provided by the installer in the area where the generator is installed or stored.
6. Damages or defects caused by inadequate air flow space or ventilation provided by the installer in the area where the generator is installed.
7. Any product or part altered or modified by the installer or service facility without written prior consent by Harrison Hydra-Gen®.
8. Cost of normal maintenance, adjustments, installation or start-up.
9. Normal wear items and components needing periodic maintenance such a rubber hoses and filters.
10. Excessive labor due to components being concealed in vehicle as a result of installation.
11. Water, road debris, excessive dirt, salt, abrasive particles, or large foreign objects found in the generator.
12. Telephone or other communications expense.
13. Paint, hydraulic fluid, and interconnecting hoses (internal or external to system assemblies).



This warranty gives you specific legal rights, and you may also have other rights that may vary from state to state or province to province.

No person is authorized to give any other warranties or to assume any other liabilities behalf of Harrison Hydra-Gen®, unless made or assumed in writing by an officer of Harrison Hydra-Gen®.

Contact Harrison Hydra-Gen® for questions regarding your warranty rights and responsibilities at (281) 807-4420; or visit our website at [www.harrisonhydragen.com](http://www.harrisonhydragen.com).



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Custom Body

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

|                             |  |
|-----------------------------|--|
| Coverage:                   | Exterior surfaces of the body shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.  |
| Warranty Begins:            | The date of the original purchase invoice (issued when the product ships from the factory).  |
| Warranty Period Ends After: | Ten (10) Years   |
| Conditions and Exclusions:  | <p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b><br/> 0-72 months 100%<br/> 73-96 months 50%<br/> 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b><br/> 0-36 months 100%<br/> 37-84 months 50%<br/> 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b><br/> 0-36 months 100%<br/> 37-48 months 50%<br/> 49-72 months 25%<br/> 73-120 months 10%</p> <p><b>Corrosion Perforation</b><br/> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include:<br/> (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).<br/> (b) UV paint fade.<br/> (c) Any cab not manufactured by Pierce.</p> |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship Graphics Fading and Deterioration

### Limited Warranty

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Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

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|--|---|
| Coverage:  | Each graphic lamination shall be free from defects in material workmanship, fading, and deterioration.  |
| Warranty Begins:   | The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.  |
| Warranty Period Ends After:                                    | One (1) Year  |
| Conditions and Exclusions:<br><br>See Also Paragraphs 2 thru 4 | This warranty does not cover damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). |

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

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If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.