



goldenstatefire.com
7400 Reese Road
Sacramento, CA 95828
Office 916.330.1638
Fax 916.330.1649

January 18, 2022

Mr. Keith Scott, *Captain*
Manteca Fire Department
1154 Union Rd.
Manteca, California 95337

Dear Captain Scott:

I am enclosing our proposal for one (1) new 107' Tractor Drawn Aerial with this cover letter. Based on your department's input, we have selected the *Pierce Velocity* chassis on which to base this proposal. Some of the significant features you'll find include:

- ✓ 605 horsepower Cummins X15 motor with an Allison EVS 4000 transmission
- ✓ 1,500 GPM Waterous single stage pump with 300-gallon water tank
- ✓ Harrison 10 KW PTO driven hydraulic generator
- ✓ 107' Pierce Ascendant Heavy-Duty Ladder
- ✓ All emergency lighting is LED

The cost of the unit described in this proposal is dependent on how the City may choose to purchase it. As noted in the various options, Pierce deducts certain prepayment credits from the final invoice, depending on the selected purchasing option. In addition, lease purchase options are available upon request (a lease purchase option would allow the City to take advantage of the 100% pre-payment pricing). Lease purchases provide greater budget flexibility using customized repayment terms to meet the unique cash flow requirements of your organization. Please take a look at the information and figures attached

The total price shown includes California Sales Tax at the rate of 8.25% and also includes three (3) factory inspection trips (4 City representatives for pre-construction, 4 City representatives for midpoint inspection and 4 City representatives for final inspection). Price is based on delivery F.O.B. to the Manteca Fire Department Headquarters.

If the City elects to purchase the proposed apparatus and would like to submit a purchase order, please address it to the following:

Golden State Fire Apparatus Inc.
7400 Reese Road
Sacramento, CA 95828

This quote will be valid until January 31, 2022.

We appreciate the opportunity to submit this information and look forward to going over any questions you might have. Let me know if there's anything else I can do and feel free to give me a call anytime. My cell number is (209) 996-8830 and thank you again.

Sincerely,

Mark Paulsen

Mark Paulsen
Sales Consultant

PRODUCT PROPOSAL

Exhibit "A"

Bid #893



OPTION A

100% Pre-Payment or Lease Purchase

This will be the price of the project contingent upon the Department (or leasing institution) paying 100% of the contract amount within 15 days of Contract Signing (or issuance of Purchase Order) **OR** if you Lease Purchase the Vehicle(s)



**GOLDEN
STATE**
FIRE APPARATUS

PROPOSAL PREPARED FOR

Manteca Fire Department
Pierce Manufacturing, Inc.
107' Velocity Tractor Drawn Aerial
HGAC FS12-19, Code FS19VA11
January 18, 2022

SALES CONSULTANT

Mark Paulsen
Golden State Fire Apparatus, Inc.
7400 Reese Road
Sacramento, CA 95828
209.996.8830 Cell
mark@goldenstatefire.com

PARTS, SERVICE & SUPPORT

Golden State Emergency Vehicle Service, Inc.
7400 Reese Road
Sacramento, CA 95828
916.330.1638 Office
parts@goldenstatefire.com

PROPOSAL PREPARED FOR:

Manteca Fire Department
1154 Union Rd.
Manteca, CA 95337

| | |
|-------------------|-------------------------|
| Submitted Date: | January 18, 2022 |
| Proposal Number: | 60118-22A |
| Expiration Date: | January 31, 2022 |
| Sales Consultant: | Mark Paulsen |

We hereby propose and agree to furnish, after your acceptance of this proposal and the proper execution by the MANTECA 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. 107' Velocity Tractor Drawn Aerial | 1,675,919.18 |
| B | Fire Fighting Equipment Custom Installation prior to Final Delivery | 15,000.00 |
| C | Discount for HGAC contract FS12-19, Product Code FS19VA11 | (44,223.00) |
| D | Discount For 100% Pre-Payment at Time of Order | (69,090.63) |
| SUBTOTAL | | 1,577,605.55 |
| 8.25% State Sales Tax | | 130,152.46 |
| California Tire Fee | | 14.00 |
| GRAND TOTAL | | 1,707,772.01 |



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 **635 to 695 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 MANTECA, 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 units 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,

Mark Paulsen

Mark Paulsen
Golden State Fire Apparatus, Inc.

I, _____ authorized representative of MANTECA 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: _____



OPTION B

Payment at Time of Delivery

This will be the price of the project if the Department
pays 100% of the contract at Time of Delivery



**GOLDEN
STATE**
FIRE APPARATUS

PROPOSAL PREPARED FOR

Manteca Fire Department
Pierce Manufacturing, Inc.
107' Velocity Tractor Drawn Aerial
HGAC FS12-19, Code FS19VA11
January 18, 2022

SALES CONSULTANT

Mark Paulsen
Golden State Fire Apparatus, Inc.
7400 Reese Road
Sacramento, CA 95828
209.996.8830 Cell
mark@goldenstatefire.com

PARTS, SERVICE & SUPPORT

Golden State Emergency Vehicle Service, Inc.
7400 Reese Road
Sacramento, CA 95828
916.330.1638 Office
parts@goldenstatefire.com

PROPOSAL PREPARED FOR:

Manteca Fire Department
1154 Union Rd.
Manteca, CA 95337

| | |
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| Submitted Date: | January 18, 2022 |
| Proposal Number: | 60118-22B |
| Expiration Date: | January 31, 2022 |
| Sales Consultant: | Mark Paulsen |

We hereby propose and agree to furnish, after your acceptance of this proposal and the proper execution by the MANTECA 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. 107' Velocity Tractor Drawn Aerial | 1,675,919.18 |
| B | Fire Fighting Equipment Custom Installation prior to Final Delivery | 15,000.00 |
| C | Discount for HGAC contract FS12-19, Product Code FS19VA11 | (44,223.00) |
| SUBTOTAL | | 1,646,696.18 |
| 8.25% State Sales Tax | | 135,852.44 |
| California Tire Fee | | 14.00 |
| GRAND TOTAL | | 1,782,562.62 |



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 **635 to 695 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 MANTECA, 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, Payment at Time of Delivery – Customer shall pay the Grand Total at time of delivery or pick up of the Product to GSFA. It is the responsibility of the Customer to have full payment ready when the Product is complete and ready to deliver or pick up. If payment is late or delivery is delayed pending payment, a daily finance charge of \$150.00 and a daily storage fee of \$50.00 may apply until such payment is received. Due to insurance liability, the Product(s) will not be left at the Customer's location without full acceptance and payment or prior written agreement between the Customer and GSFA.

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 units 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,

Mark Paulsen

Mark Paulsen
Golden State Fire Apparatus, Inc.

I, _____ authorized representative of MANTECA 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: _____

PRODUCT SPECIFICATIONS

Exhibit "B"

Bid #893



Customer: Manteca Fire Department
Representative: Paulsen, Mark
Requirements Manager:
Description: 107' Velocity Tiller Similar to 309
Chassis: Velocity Tractor Chassis (Tiller), (Big Block), 2010
Body: Aerial, Tiller, Alum Body

Bid Number: 893
Job Number:
Organization: Golden State Fire Apparatus, Inc

OptionCode Type Option ProposalText

0766599 Boiler Plates, Tiller

Golden State Fire Apparatus is pleased to submit a proposal to The City Of Manteca for a Pierce® Tractor-Drawn 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 two (2) 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 50 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.

ATTACHMENT 2

SERVICE AND WARRANTY SUPPORT

Pierce dealership support will be provided by Golden State EVS by operating in conjunction with 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 (100) 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

ATTACHMENT 2

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.

| | | |
|---------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0018180 | Single Source Compliance, Aerials | SINGLE SOURCE MANUFACTURER 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 | |
| 0028079 | Match Not Required | |
| 0610784 | Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions | NFPA 2016 STANDARDS 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. Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus. 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. 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. The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications. An official of the company will designate, in writing, who is qualified to witness and certify test results. |
| 0533349 | Aerial Fire Apparatus | |
| 0588612 | Vehicle Certification, Aerial w/Pump | |

NFPA COMPLIANCE

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*.

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STF GSFA, Midpoint, ATW Factory, Major Airport, 4 Days and 3 nights

MIDPOINT, FACTORY TRIP

A midpoint inspection trip to the manufacturing facility will be provided for four (4) Customer representative(s). The intent of this trip is to monitor the progress of construction. The midpoint inspection trip will have a duration of four (4) days and three (3) nights and be scheduled at times mutually agreed upon between Golden State Fire Apparatus (GSFA), and the Customer. Costs for airfare, lodging, meals and ground transportation while at the manufacturers location will be the responsibility of GSFA. Air travel will be from one of the following airports: Sacramento, San Francisco or San Jose.

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. Flight reservations are non-refundable and in the event of a cancellation after booking, the Customer will be responsible for all costs associated with this cancellation, which may include not only the original ticket cost but also any change or cancellation fees imposed by the airline and/ or travel agency. Flight reservations are also non-transferable.

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STF GSFA, Final Insp, ATW Factory, Major Airport, 4 Days and 3 nights

FINAL INSPECTION FACTORY TRIP

A final inspection trip to the manufacturing facility will be provided for four (4) Customer representative(s). The intent of this trip is to ensure that the apparatus is built to specification and to detect any deficiencies that require correction. The final inspection trip will have a duration of four (4) days and three (3) nights and be scheduled at times mutually agreed upon between Golden State Fire Apparatus (GSFA), and the Customer. Costs for airfare, lodging, meals and ground transportation while at the manufacturers location will be the responsibility of GSFA. Air travel will be from one of the following airports: Sacramento, San Francisco or San Jose.

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. Flight reservations are non-refundable and in the event of a cancellation after booking, the Customer will be responsible for all costs associated with this cancellation, which may include not only the original ticket cost but also any change or cancellation fees imposed by the airline and/ or travel agency. Flight reservations are also non-transferable.

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| 0000000 | STF GSFA, Pre-Construction, ATW Factory, Major Airport, 5 Days and 4 nights | <p>PRE-CONSTRUCTION, FACTORY TRIP</p> <p>A pre-construction trip to the manufacturing facility will be provided for one (1) Customer representative(s). The intent of this trip is to review and finalize, in detail, the specifications prior to the start of production. The pre-construction trip will have a duration of five (5) days and four (4) nights and be scheduled at times mutually agreed upon between Golden State Fire Apparatus (GSFA), and the Customer. Costs for airfare, lodging, meals and ground transportation while at the manufacturers location will be the responsibility of GSFA. Air travel will be from one of the following airports: Sacramento, San Francisco or San Jose.</p> <p>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. Flight reservations are non-refundable and in the event of a cancellation after booking, the Customer will be responsible for all costs associated with this cancellation, which may include not only the original ticket cost but also any change or cancellation fees imposed by the airline and/ or travel agency. Flight reservations are also non-transferable.</p> |
| 0620362 | Consortium, HGAC | |
| 0537375 | Unit of Measure, US Gallons | |
| 0030006 | Bid Bond Not Requested | <p>BID BOND NOT REQUESTED</p> <p>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.</p> <p>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>PERFORMANCE BOND, 1 YEAR</p> <p>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.</p> <p>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>APPROVAL DRAWING</p> <p>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.</p> <p>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> |
| 0517327 | Drawing, As Built, At Delivery a Revised Print w/ Changes | <p>FINAL DRAWING</p> <p>There will be a revised drawing of the truck with all the changes made during production provided at pickup.</p> |
| 0682087 | Drawing, Compartment Layout, Tiller | <p>DRAWING, COMPARTMENT LAYOUT</p> <p>A basic drawing will be provided for the interior body compartments. This drawing will be provided for graphic representation only and will include such things as shelves, trays, reels, dividers, air control panels, air bottle storage bins, poly boxes, etc.</p> |
| 0002928 | Electrical Diagrams | <p>ELECTRICAL WIRING DIAGRAMS</p> <p>Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.</p> |

ATTACHMENT 2

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| 0564218 | Velocity Tractor Chassis (Tiller), (Big Block), 2010 | VELOCITY CHASSIS The Pierce Velocity® 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. |
| 0021007 | Maximum Overall Height | MAXIMUM OVERALL HEIGHT The maximum overall height of the apparatus will be 140.00" (11'-8.00"). |
| 0021010 | Maximum Overall Length | MAXIMUM OVERALL LENGTH The maximum overall length of the apparatus will be 732.00" (61'-0"). |
| 0523786 | Angle of Approach | ANGLE OF APPROACH The angle of approach will be 15.90 degrees. This will be effective with the truck in a loaded state. |
| 0523787 | Angle of Departure | ANGLE OF DEPARTURE The angle of departure will be 11.9 degrees. This will be effective with the truck in a loaded state. |
| 0000110 | Wheelbase | WHEELBASE The wheelbase of the vehicle will be 176.50". |
| 0000070 | GVW Rating | GVW RATING The gross vehicle weight rating will be 76,600 pounds. |
| 0000203 | Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel/DCF | FRAME 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 | |
| 0508849 | Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Imp/Vel | FRONT NON DRIVE AXLE The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 22,800 lb. Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron. The center cross members and side plates will be constructed out of 80,000-psi yield strength steel. Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations. There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension. The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load. Camber at load will be 0 degrees for optimum tire life. The ball joint bearing will be of low friction design and be maintenance free. Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided. The wheel ends will have little to no bump steer when the chassis encounters a hole or obstacle. The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase. The axle will have a third party certified turning angle of 45 degrees. Front discharge, front suction, or aluminum wheels will not infringe on this cramp angle. |

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| 0010427 | Suspension, Front TAK-4, 22,800 lb, Qtm/AXT/Imp/Vel/DCF/Enf | <p>FRONT SUSPENSION Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 lb. The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment. Each wheel will have torsion bar type spring. In addition, each front wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension. The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms. The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side. The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.</p> |
| 0087572 | Shock Absorbers, KONI, TAK-4, Qtm/AXT/Imp/Vel/DCF/Enf | <p>FRONT SHOCK ABSORBERS KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.</p> |
| 0000322 | Oil Seals, Front Axle | <p>FRONT OIL SEALS Oil seals with viewing window will be provided on the front axle.</p> |
| 0686052 | Tires, Front, Michelin, XFE (wb), 425/65R22.50, 20 ply, Fire Service Speed Rtnng | <p>FRONT TIRES Front tires will be Michelin 425/65R22.50 radials, 20 ply XFE wide base tread, rated for 22,800 lb maximum axle load and 75 mph maximum speed.</p> |
| 0019611 | Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot | <p>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.</p> |
| 0000310 | Request for Turning Radius Report | <p>TURNING RADIUS REPORT A turning radius analysis of the custom Pierce chassis that we are proposing will be included with this proposal. This analysis will provide information on the inside turning radius, the outside turning radius, the curb to curb turning radius, and the wall to wall turning radius.</p> |
| 0530467 | Axle, Rear, Meritor RS30-185, 31,000 lb, Imp/Vel/Dash CF | <p>REAR AXLE The rear axle will be a Meritor™, Model RS-30-185, with a capacity of 31,000 lb.</p> |
| 0544244 | Top Speed of Vehicle, 60 MPH | <p>TOP SPEED OF VEHICLE A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 mph.</p> |
| 0555352 | Suspen, Rear, Hendrickson FMX 312 EX, Air Ride, 31,000 lb | <p>REAR SUSPENSION Rear suspension will be a Hendrickson FMX 312 EX, air ride with a ground rating of 31,000 lb. The suspension will have the following features: - Heavy-duty shock absorbers to protect air springs from overextension - Heavy-duty torque rods and bushings - Premium, heavy-duty rubber bushings require no lubrication - Integrated stabilizer design results in greater stability - Low spring rate air springs for excellent ride quality - Dual height control valves to maintain level vehicle from side to side</p> |
| 0000485 | Oil Seals, Rear Axle | <p>REAR OIL SEALS Oil seals will be provided on the rear axle(s).</p> |
| 0539392 | Plug, Rear Axle Drain, Magnetic | <p>REAR AXLE DRAIN PLUG The rear axle drain plug will be magnetic.</p> |
| 0532864 | Tires, Rear, Michelin, XZU S2, 315/80R22.50, 20 ply, Single | <p>REAR TIRES Rear tires will be four (4) Michelin radials 315/80R22.50, 20 ply all position XZU-S2 tread, rated for 33,080 lb maximum axle load and 65 mph maximum speed.</p> |
| 0019668 | Wheels, Rear, Alcoa, 22.50" x 9.00", Aluminum, Hub Pilot, Single | <p>The tires will be mounted on Alcoa© 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.</p> |

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| 0568081 | Tire Balancing, Counteract Beads | TIRE BALANCE 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 | TIRE PRESSURE MANAGEMENT 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. 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. 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. |
| 0003245 | Axle Hub Covers w/center hole, S/S, Front Axle | FRONT HUB COVERS Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided. |
| 0003246 | Axle Hub Covers w/center hole, S/S, Tiller Axle | HUB COVERS (Tiller Axle) Stainless steel hub covers will be provided on the tiller trailer axle. An oil level viewing window will be provided. |
| 0001960 | Axle Hub Covers, Rear, S/S, High Hat (Pair) | REAR HUB COVERS A pair of stainless steel high hat hub covers will be provided on rear axle hubs. |
| 0052332 | Covers, Lug Nut, Stainless Steel | LUG NUT COVERS Stainless steel lug nut covers will be installed on all lug nuts. |
| 0002045 | Mud Flap, Front and Rear, Pierce Logo | MUD FLAPS Mud flaps with a Pierce logo will be installed behind the front and rear wheels. |
| 0020257 | Mud Flap, Tiller Trailer, Pierce Logo | MUD FLAPS Mud flaps will be installed behind the tiller trailer wheels of the apparatus. |
| 0031931 | Valve, Extension Stabilizer System, Rear Duals | STABILIZER SYSTEM (Rear Valve Stems) A valve stem stabilizer system will be provided on the rear duals. |
| 0601010 | Chocks, Wheel, SAC-44-E, Folding, Aerials | WHEEL CHOCKS There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided. |
| 0690999 | Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal, Angle Mount | Wheel Chock Brackets There will be one (1) pair of Ziamatic SQCH-44-H horizontal mounting wheel chock brackets provided for the Ziamatic SAC-44-E folding wheel chocks. The brackets will be mounted to be determined at pre-construction. The brackets will be mounted on an angle, with the "stop" down and opening up. |
| 0020670 | ABS Wabco Brake System, Single Axle, Tiller | ANTI-LOCK BRAKE SYSTEM The vehicle will be equipped with a Wabco tractor 4S4M and tiller tractor 2S2M anti-lock braking system. The chassis ABS will provide four (4) channel anti-lock braking control on the front and rear axle. The trailer ABS will provide two (2) channel anti-lock braking control on the tiller axle. 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. A tiller trailer ABS fault lamp will be provided in the tiller cab and the chassis cab. Two (2) connectors are provided to read the diagnostics for each ABS system. The two (2) diagnostic systems communicate on different protocols requiring different diagnostics - SAEJ1587 versus J1939. |
| 0030185 | Brakes, Knorr/Bendix 17", Disc, Front, TAK-4 | BRAKES The service brake system will be full air type. The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance. The brake system will be certified, third party inspected, for improved stopping distance. |

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| 0000740 | Brakes, Meritor, Cam, Rear, 16.50 x 8.63" | The rear brakes will be Meritor™ 16.50" x 8.63" cam operated with automatic slack adjusters. Dust shields cannot be provided. |
| 0020784 | Air Compressor, Brake, Cummins/Wabco 18.7 CFM | BRAKE SYSTEM AIR COMPRESSOR The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output. |
| 0000786 | Brake Reservoirs, Four | BRAKE SYSTEM The brake system will include: Bendix® dual brake treadle valve Heated automatic moisture ejector on air dryer Total air system capacity of 5,198 cubic inches Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi Spring set parking brake system Parking brake operated by a push-pull style control valve A parking "brake on" indicator light on instrument panel 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 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) 1/4 turn drain valve on each air tank The air tank will be primed and painted to meet a minimum 750 hour salt spray test. 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 | BRAKE SYSTEM AIR DRYER The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater. |
| 0000790 | Brake Lines, Nylon | BRAKE LINES 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. |
| 0000858 | Inlet/Outlet, Air, w/Disconnect Fitting | AIR INLET/OUTLET One (1) air inlet/outlet will be installed with the female coupling located in the driver side lower step well of cab. This system will tie into the "wet" tank of the brake system and include a check valve in the inlet line and an 85 psi pressure protection valve in the outlet line. The air outlet will be controlled by a needle valve. A mating male fitting will be provided with the loose equipment. The air inlet will allow a shoreline air hose to be connected to the vehicle. This will allow station air to be supplied to the brake system of the vehicle to insure constant air pressure. |
| 0792009 | SP Outlet, Air, with shut off valve Recessed, Fill In Blank Feature | AIR OUTLET One (1) air outlet will be installed with a female coupling and shut off valve, located recessed P8 Rear compartment bulkhead, centered up and down, close to the roll up door. . This system will tie into the "wet" tank of the brake system and include an 85 psi pressure protection valve in the outlet line to prevent the brake system from losing all air. A mating male fitting will be provided with the loose equipment. |
| 0070810 | All Wheel Lockup (Aerial/Tanker Chassis) | ALL WHEEL LOCK-UP 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. |
| 0658952 | Air Tank, Additional for Extra Air Horn Capacity, Velocity Tiller | AIR TANK, ADDITIONAL An additional air tank with 1,454 cubic inch displacement will be provided to increase the capacity of the air system. This tank will be dedicated for air horn use. The air tank will be primed and painted to meet a minimum 750 hour salt spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets. The output flow of the engine air compressor varies with engine RPM. Full compressor output is only achieved at governed engine speed. Engine speed may be limited by generators, pumps and other PTO driven options. |
| 0642617 | Air Line, S/S Braid, Air Governor To Air Dryer | AIR LINE The air line from the air compressor governor to the air dryer will be stainless steel braid. |

Engine, Cummins X15, 605 hp, 1850 lb-ft, W/OBD, EPA 2021, Velocity

ENGINE

The chassis will be powered by an electronically controlled engine as described below.

Make:

Cummins®

Model:

X15

Power:

605 hp at 1800 rpm

Torque:

1850 lb-ft at 1000 rpm

Governed Speed:

2100 rpm

Emissions Level:

EPA 2021

Fuel:

Diesel

Cylinders:

Six (6)

Displacement:

912 cubic inches (14.9L)

Starter:

Delco 39MT+™

Fuel Filters:

Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor

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.

0730808

Filters, Remote Mounted, Oil, Fuel, X15, VEL/AXT/Enf

REMOTE MOUNTED ENGINE FILTERS

The engine fuel and oil filters will be remote mounted for ease of maintenance.

0001244

High Idle w/Electronic Engine, Custom

HIGH IDLE

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.

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."

0687994

Engine Brake, Jacobs Compression Brake, Cummins Engine

ENGINE BRAKE

A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.

The engine brake will activate when the system is on and the throttle is released.

The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.

The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system will automatically disengage the auxiliary braking device, when required.

0552334

Clutch, Fan, Air Actuated, Horton Drive Master

CLUTCH FAN

A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.

0657451

Heater, 1500 Watt Immersion, Thermostatically Controlled, Shoreline

ENGINE HEATER

A 1,500 watt, 120 volt, immersion type engine heater will be installed. The AC power inlet will be connected to the shoreline. The heater is thermostatically controlled.

0123135

Air Intake, w/Ember separator, Imp/Vel

ENGINE AIR INTAKE

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.

| 0794743 | Exhaust System, 5", X12/X15, MX13, Engine, Horizontal, Right Side | <p>EXHAUST SYSTEM</p> <p>The exhaust system will include a Single Module Aftertreatment Device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the aftertreatment device, and will be 5.00" in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. 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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| 0644333 | Exhaust, Modified and Flush with Body Side Rub Rail | <p>EXHAUST MODIFICATION</p> <p>The exhaust pipe will be brought out from under the body at a 90 degree angle from the truck. The tail pipe will terminate at the body side and will be flush with the body side.</p> |
| 0787999 | Radiator, Impel/Velocity | <p>RADIATOR</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. 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.</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. 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>COOLANT LINES</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> |
| 0041669 | Fuel Tank, 50 Gallon, Dual Fills | <p>FUEL TANK</p> <p>A 50 gallon fuel tank will be provided and mounted at rear of 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 .75" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be located on the left hand and right hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only". A .50" diameter vent will be provided running from top of tank to just below fuel fill inlets. The tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p> <p>Servicing the fuel tank pick-up tubes and fuel gauge sending unit will be capable of being accomplished by draining fuel and dropping tank.</p> |
| 0001129 | Lines, Fuel | <p>All fuel lines will be provided as recommended by the engine manufacturer.</p> |
| 0763582 | DEF Tank, 4.5 Gallon, DS Fill, Forward of Rear Axle, Tiller | <p>DIESEL EXHAUST FLUID TANK</p> <p>A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body forward of the rear axle.</p> <p>A 0.50" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be located on the driver's side of the body and be covered with a hinged polished stainless steel door that is marked "Diesel Exhaust Fluid Only".</p> <p>The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing.</p> <p>The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</p> |
| 0723716 | Fuel Priming Pump, Electronic, Automatic, Cummins, No Swt Req'd | <p>FUEL PRIMING PUMP</p> <p>A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.</p> |

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| 0582243 | Shutoff Valves, Fuel Line @ Primary Filter, Cummins | FUEL SHUTOFF A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter. |
| 0553019 | Cooler, Engine Fuel, Imp/Vel, AXT/Qtm/Sab/DCF/SFR/Enf | FUEL COOLER An air to fuel cooler will be installed in the engine fuel return line. |
| 0567427 | Fuel Lines, Extended, PAL/Tiller | FUEL LINES The fuel lines for the fuel tank will be approximately 4' longer than standard. This will allow the lines to be coiled above the fuel tank and aid in an easier removal of the fuel tank if necessary. |
| 0578959 | Fuel/Water Separator, Racor Inline | FUEL SEPARATOR The engine will be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters. |
| 0642533 | Trans, Allison 5th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/DCF/Enf | TRANSMISSION An Allison 5th generation, Model EVS 4500P, 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. |
| 0512762 | Transmission, Shifter, 6-Spd, Push Button, 4500, Imp/Vel/Qtm/DCF/Enf | TRANSMISSION SHIFTER 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: 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 | TRANSMISSION COOLER A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature. |
| 0027844 | Fluid, 4000 Series Trans, Allison Approved TES-295 Synthetic, IPOS, Custom | TRANSMISSION FLUID The transmission will be provided with TranSynd, or other Allison approved TES-295 heavy duty synthetic transmission fluid. |
| 0001375 | Driveline, Spicer 1810 | DRIVELINE 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. |
| 0669988 | Steering, Sheppard M110 w/Tilt, TAK-4, Eaton Pump, w/Cooler | STEERING Dual Sheppard, Model M110, steering gears, 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 braded lines with crimped fittings. A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations. |
| 0001544 | Not Required, Steering Assist Cylinder on Front Axle | |
| 0509230 | Steering Wheel, 4 Spoke without Controls | STEERING WHEEL The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design. |
| 0690274 | Logo/Emblem, on Dash | LOGO AND CUSTOMER DESIGNATION ON DASH 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. The first row of text will be: MANTECA The second row of text will be: FIRE The third row of text will be: DEPARTMENT |

ATTACHMENT 2

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| 0569141 | Bumper, 13" Extended, Steel Painted, Imp/Vel | BUMPER A one piece bumper manufactured from 0.25" formed steel with a 0.38" bend radius will be provided. The bumper will be a minimum of 10.00" high with a 1.50" top and bottom flange, and will extend 13.00" from the face of the cab. The bumper will be 102.00" wide with 45 degree corners and side plates. The bumper will be metal finished and painted job color. To provide adequate support strength, the bumper will be mounted directly to the front of the C channel frame. The frame will be a bolted modular extension frame constructed of 50,000 psi tensile steel. Gravel Pan A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and the cab face. The pan will be properly supported from the underside to prevent flexing and vibration. |
| 0616511 | Tray, Hose, Center, 13" Bumper, Outside Air Horns, Imp/Vel | CENTER HOSE TRAY A hose tray, constructed of aluminum, will be placed in the center of the bumper extension. The tray will have a capacity of 100' of 1.50" double jacket cotton-polyester hose. Black rubber grating will be provided at the bottom of the tray. Drain holes are also provided. |
| 0630809 | Cover, Aluminum Treadplate, One (1) D-Ring Latch, Hose Tray, Notched | Center Hose Tray Cover A bright aluminum treadplate cover will be provided over the center hose tray. The cover will be "notched" allowing the hose to be pre connected to hose connection. The cover will be attached with a stainless steel hinge. A D-ring latch will secure the cover in the closed position and a pneumatic stay arm will hold the cover in the open position. The arm will be Passenger side. |
| 0510226 | Lift & Tow Package, Imp/Vel, AXT, Dash CF | LIFT AND TOW MOUNTS 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. |
| 0522573 | Tow Hooks Not Required, Due to Lift and Tow Package | TOW HOOKS No tow hooks are to be provided. This truck will be equipped with a lift and tow package with integral tow eyes. |
| 0660435 | Coating, Top Flange, Front Bumper, Outside Exterior, Rhino Lining, Black | RHINO COATING - FRONT BUMPER Protective black Rhino Linings® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange. The lining will be properly installed by an authorized Rhino Linings® dealer. |

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 47.50" 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 fit 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).

| Item ID | Description | Section Title | Details |
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| 0724207 | Engine Tunnel, X12-15, MX13, Mech Fasteners, Velocity FR | ENGINE TUNNEL | <p>To provide structural strength, the engine tunnel sidewalls will be constructed of .60" aluminum plate that is welded to both the .25" firewall and .38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.</p> <p>The engine tunnel 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 | CAB REAR WALL EXTERIOR COVERING | 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. |
| 0122466 | Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel | CAB LIFT | <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.</p> <p>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>Cab Lift Interlock</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> |
| 0550343 | Special Circuit, Cab Tilt w/o Ignition Switch | CAB TILT CIRCUIT | The cab tilt mechanism will be operational with the battery switch on and with parking brake set. |
| 0123176 | Grille, Bright Finished, Front of Cab, Impel/Velocity | GRILLE | 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. |
| 0002224 | Scuffplates, S/S At Cab Door Jambs, 4-Door Cab | DOOR JAMB SCUFFPLATES | All cab door jambs will be furnished with a polished stainless steel scuffplate, mounted on the striker side of the jamb. |
| 0527032 | Trim, S/S Band, Across Cab Face, Rect Lights, Velocity | FRONT CAB TRIM | <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> |
| 0015440 | No Chrome Molding, On side of cab | | |
| 0032189 | Mirrors, Ramco, 6000PCHR, Heated/Remote, w/Heated/Remote Convex, Door Mount | MIRRORS | <p>One (1) Ramco, Model 6000-PCHR, polished aluminum mirror will be mounted on each of the cab doors. The mirrors will be 9.25" wide x 13.50" high with a convex section. The mirror head will have a highly polished aluminum finish.</p> <p>The flat glass in each mirror will be heated and adjustable, with remote controls that are convenient to the driver.</p> <p>The convex section in each mirror will be heated and adjustable, with remote controls that are convenient to the driver.</p> |
| 0589624 | SP Mirror, 8" Round Convex, Tiller Body (PR) | CONVEX MIRRORS (tiller body) | An 8.00" diameter round convex mirror with adjustable arm will be installed on each side rear of the tiller body. |

0667937

Door, Full Height, Velocity FR 4-Door Cab, Raised Roof **CAB DOORS**

ATTACHMENT 2

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.

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.

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.

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.

The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The locks 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.

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.

A chrome grab handle will be provided on the inside of each cab and crew cab door.

A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.

The cab steps at each cab door location will be located inside the cab doors to protect the steps from weather elements.

0655511

Door Panel, Brushed Stainless Steel, Impel/Velocity 4-Door Cab

Door Panels

The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.

0667905

Storage Pockets w/ Elastic Cover, Recessed, Overhead, Impel/Velocity FR

RECESSED POCKET WITH ELASTIC COVER

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.

0637961

SP

Controls, Electric Windows, All Cab Doors, DS Instr Pnl Swtch, Imp/Vel FR

ELECTRIC WINDOW CONTROLS

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 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 in the center instrument console. The officer and 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.

0555485

Steps, 4-Door Full Tilt Cab, Imp/Vel

CAB STEPS

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.

0770200

Handrail, Exterior, Hansen, Knurled, Alum, LED Backlit, 4-Door Cab

CAB EXTERIOR HANDRAILS

A Hansen knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Each handrail will be provided with white LED lights. The lights will be activated when the parking brake is applied. The LED lights may be load managed.

0509649

Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step

STEP LIGHTS

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.

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.

The lights will be activated when the adjacent door is opened.

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| 0002140 | Fenders, S/S on Cab | FENDER CROWNS Stainless steel fender crowns will be installed at the cab wheel openings. | ATTACHMENT 2 |
| 0032086 | Tractor 5th Wheel and Fender Skirts, Single, Tiller, No Tire Chains | FIFTH WHEEL The fifth wheel will be designed to allow the tiller trailer to pivot fore & aft and be rotated. The fifth wheel will also be capable of full operation up to a 14 degree break over angle. A fifth wheel lockout system will be provided to limit motion during aerial operations. The fifth wheel lockout system, when activated, will prevent movement between the upper and lower plates of the fifth wheel assembly. In the normal road travel condition the cylinder mounted solenoid valves will be open and will allow transfer of oil between the front and rear pair of cylinders. When the stabilizers are in their proper supporting position and as the aerial leaves the boom support, the solenoid valves will close. The closed valves will allow no oil to be transferred and the fifth wheel assembly will become rigid. A fill and a gauge port will be provided on the top of the trailer goose neck for maintenance. FENDER PANELS The chassis behind the cab will be assembled with fender panels over the wheels, running boards and steps for access to the turntable and decking over the frame rails. The fender panels will be fabricated of .125"-5052 aluminum with a 38,000 psi tensile strength. Fender design will be provided for prevention of rust pockets and ease of maintenance. Stainless steel fender crowns will be provided around the rear wheel openings. A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion. The area over the frame rails between the cab and fifth wheel will be covered with aluminum treadplate to serve as a walkway area. The walkway area will be properly reinforced with a steel substructure attached to the frame rails. Running boards will be installed on each side directly behind the cab for access to the walkway area behind the cab and the turntable. The running boards will be covered with aluminum treadplate. | |
| 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 | | |
| 0509286 | Not Required, Windows Rear of Crew Cab, Imp/Vel | | |
| 0558334 | Not Required, Trim, Cab Rear Windows, No Rear Windows | | |
| 0786278 | Window Tint, Crew Cab Door, Right Side, Medium Gray | RIGHT SIDE ROLLUP CREW CAB DOOR WINDOW TINT The rollup window in the right side crew cab door will be tinted medium gray. | |
| 0786289 | Window Tint, Crew Cab Door, Left Side, Medium Gray | LEFT SIDE ROLLUP CREW CAB DOOR WINDOW TINT The rollup window in the left side crew cab door will be tinted medium gray. | |
| 0123686 | Drip Rail, Cab Roof, Impel/Velocit/Velocity SLT | CAB ROOF DRIP RAIL 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. | |
| 0199285 | Visor, Exterior, Vel/Imp | EXTERIOR VISOR 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. | |
| 0553057 | Holder, Cup, Cab/Crewcab, Each | CUP HOLDER There will be four (4) cup holder(s) provided. Each cup holder will have self-adjusting fingers that automatically grip beverage containers of various sizes. A recess in the cup holder will allow it to hold beverage containers with handles. The cup holder(s) will be located at customer pick-up. | |

| Item ID | Description | Requirements |
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| 0664465 | Bracket, Air Bottle, Hands-Free II | <p>AIR BOTTLE HOLDERS</p> <p>There will be one (1) Gen II Hands-Free bracket(s) provided in the crew cab. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the user to store the SCBA bottle by simply pushing it into the bracket. 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 for up to a 9G force (dynamic sled test), which meets NFPA standard. The bracket(s) will be located centered in the area where the drivers side foreword facing seat would be, low enough to be reached from the ground.</p> |
| 0629017 | Work Surface, 3/16" Alum, Full Engine Tunnel, Lower Rear, Rear Lip, Vel/Imp FR | <p>WORK SURFACE</p> <p>There will be a work surface provided on the engine tunnel. The work surface will be cover the entire engine tunnel and will be constructed of .19" aluminum to allow the mounting of equipment. The work surface will be approximately 37.00" wide x 48.00" long, with a cutout for the driver side instrument panel. The work surface will start to the rear of the center instrument panel and continue horizontally to the flat portion at the rear of the engine tunnel. The work surface will drop to the lower flat portion of the engine tunnel and finish at the end of the engine tunnel. The lower portion of the work surface will be provided with a 3.00" lip. The work surface will be painted to match the cab interior.</p> |
| 0745931 | SP Modification, Reinforcement, Officer's Side Recessed Dash, AXT, Imp/Vel | <p>MODIFICATION/REINFORCEMENT OF OFFICER'S DASH</p> <p>The area under the officer's side dash will be reinforced with an aluminum plate for a more rigid mounting for the customer's computer mount. The plate will be painted to match the cab interior.</p> |
| 0748671 | Cab Interior, Vinyl, Velocity FR, CARE | <p>CAB INTERIOR</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. The center console will be a high impact ABS polymer and will be easily removable. 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. 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>CAB INTERIOR UPHOLSTERY</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> |
| 0667943 | Cab Interior, Paint Color, Impel/Velocity FR | <p>CAB INTERIOR PAINT</p> <p>The following metal surfaces will be painted black, vinyl textured paint:</p> <ul style="list-style-type: none"> Modesty panel in front of driver Vertical surface of dash in front of the officer (not applicable for recessed dash) Glove box in front of the officer (if applicable) Power distribution in front of the officer Rear heater vent panels <p>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>CAB FLOOR</p> <p>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. 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**ATTACHMENT 2**

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.

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

0699999 Not Required, Frontal Impact Protection, 2010

0699998 Not Required, Side Roll Protection Package, 2010

0622617 Seating Capacity, 6 Seats

SEATING CAPACITY

The seating capacity in the cab will be six (6).

0764478 Seat, Driver, USSC, Valor, P1A, Air Ride, I-Back, Safety

DRIVER SEAT

A USSC, Model P1A, air suspension seat will be provided in the cab for the driver. For increased convenience, the seat will include a manual control to adjust the height (2.50" travel) and horizontal position (6.00" travel). To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 90 degrees to 45 degrees rearward. 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 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.

Shipped loose with the seat will be no additional contaminant mitigation vinyl covers.

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|---------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0797631 | Seat, Officer, USSC, Valor, P1A, Air Ride, SCBA, Safety, Imp/Vel | <p>OFFICER SEAT A USSC, P1A, SCBA air suspension seat will be provided in the cab by the officer. For optimal comfort, the seat will be provided with 17.00" deep cushion. To ensure safe operation, the seat will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled. The seat back will be an SCBA back style with a 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 0.75" 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 suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt, 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. There will be no additional contaminant mitigation vinyl covers shipped loose with the seat.</p> |
| 0510038 | Radio Compartment, Behind Officer Seat, Imp/Vel | <p>RADIO COMPARTMENT A compartment for the radio amplifier will be located on the floor of the cab behind the front passenger's seat. A lift-up door with a chrome plated lift and turn latch will be provided for access. The compartment will be constructed of smooth aluminum and painted to match the cab interior.</p> |
| 0765633 | Cabinet, Rear Facing, LS, 30.5 W x 38 H x 24 D, Ext Acc Only, Imp/Vel | <p>REAR FACING LEFT SIDE CABINET A rear facing cabinet will be provided in the crew cab at the left side outboard position. The cabinet will be 30.50" wide x 38.00" high x 24.00" deep. The cabinet will provide access from outside the cab only with one (1) double pan door painted to match the cab exterior with a non-locking D-ring latch. The clear door opening will be 19.75" wide x 35.00" high. The door will be located on the side of the cab over the wheelwell and include a rubber bumper as a door stop. The cabinet will include one (1) infinitely adjustable shelf with a 0.75" up-turned lipped painted to match the cab interior. The cabinet will include no louvers. 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. Cabinet Light There will be one (1) Amdor H2O LED strip light installed on the left side of the exterior cabinet door opening and 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> |
| 0102783 | Not Required, Seat, Rr Facing C/C, Center | |
| 0765626 | Cabinet, Rear Facing, RS, 26.5 W x 38 H x 21.5 D, Ext Acc Only, Imp/Vel | <p>REAR FACING RIGHT SIDE CABINET A rear facing cabinet will be provided in the crew cab at the right side outboard position. The cabinet will be 26.50" wide x 38.00" high x 21.50". The cabinet will include one (1) infinitely adjustable shelf with a 0.75" up-turned lipped painted to match the cab interior. The cabinet will include no louvers. The cabinet will only provide access from outside the cab with one (1) double pan door painted to match the cab exterior with a non-locking D-ring latch. A pneumatic stay arm will be provided as a door stop. The exterior clear door opening will be 16.00" wide x 35.00" 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. Cabinet Light There will be one (1) white Amdor LED strip light installed on the left side of the exterior cabinet door opening and 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> |
| 0565245 | Seat, Forward Facing C/C, DS Outboard, Flip Up Cushion, Safety | <p>FORWARD FACING DRIVER SIDE OUTBOARD SEAT There will be one (1) forward facing flip-up seat provided at the driver side outboard position in the crew cab. The seat back will have a plywood backing, covered with foam padded upholstery. The seat bottom will be constructed of a piece of plywood covered with foam rubber and upholstery. The bottom cushion will have its bottom covered with brushed stainless steel, for a pleasant appearance when the seat bottom is in the up position. 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 will include the following features incorporated into the side roll protection system: 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.</p> |

| Item ID | Description | Section Header | ATTACHMENT 2 |
|---------|------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0765312 | Seat, Forward Facing C/C, Center, (2) USSC, Valor, SCBA, 95 D, Safety | FORWARD FACING CENTER SEATS | <p>There will be two (2) forward facing, USSC Valor, SCBA seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 15.00" deep cushions. To ensure safe operation, the seats will be equipped with a sensor in the seat cushion and belt receptacle that will activate an alarm indicating the seat is occupied but not buckled. The seat backs will be an SCBA style with a 95 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 0.75" 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 features incorporated into the side roll protection system: A seat safety system will be included. When activated, this system will pretension the seat belts. The seats will be furnished with a 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> |
| 0565256 | Seat, Forward Facing C/C, PS Outboard, Flip Up Cushion, Safety | FORWARD FACING PASSENGER SIDE OUTBOARD SEAT | <p>There will be one (1) forward facing flip-up seat provided at the passenger side outboard position in the crew cab. The seat back will have a plywood backing, covered with foam padded upholstery. The seat bottom will be constructed of a piece of plywood covered with foam rubber and upholstery. The bottom cushion will have its bottom covered with brushed stainless steel, for a pleasant appearance when the seat bottom is in the up position. 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 will include the following features incorporated into the side roll protection system: 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.</p> |
| 0691875 | Brackets/Clamps, For Strip Lighting In Compartments, IPO Velcro | BRACKETS/CLAMPS FOR COMPARTMENT LIGHTS | <p>All LED light strips, in all locations will be mounted with clamps or brackets, in place of the standard Velcro®.</p> |
| 0782746 | Upholstery, Seats In Cab, All Vinyl, USSC, CARE | SEAT UPHOLSTERY | <p>All seat upholstery will be leather grain black vinyl resistant to oil, grease and mildew. The cab will have six (6) seating positions.</p> |
| 0543991 | Bracket, Air Bottle, Hands-Free II, Cab Seats | AIR BOTTLE HOLDERS | <p>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> |
| 0639023 | SP Driver Seat Hooked to Battery Switched IPO Ignition Switched | DRIVER SEAT POWER | <p>The driver seat power for the adjustability will be powered when the master battery switch is turned on in place of the standard ignition switched.</p> |
| 0603867 | Seat Belt, ReadyReach | SEAT BELTS | <p>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.</p> <p>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.</p> <p>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 | SHOULDER HARNESS HEIGHT ADJUSTMENT | <p>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.</p> <p>A total of four (4) seating positions will have the adjustable shoulder harness.</p> |
| 0627014 | Pick Not Required, Seat Belt Color Selected in Seat Belt Option 627339 | | |
| 0602464 | Helmet Storage, Provided by Fire Department, NFPA 2016 | HELMET STORAGE PROVIDED BY FIRE DEPARTMENT | <p>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 | CAB DOME LIGHTS | ATTACHMENT 2 |
|---------|-----------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0650184 | Lights, Dome, Weldon, Dual LED | ADDITIONAL DOME LIGHTS | <p>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.</p> <p>The color of the LED's will be red and white .</p> <p>The white LED's will be controlled by the door switches and the lens switch.</p> <p>The color LED's will be controlled by the lens switch.</p> |
| 0631776 | Not Required, Overhead Map Lights | | |
| 0555813 | Handlts, (4) Streamlight, Fire Vulcan, 44451, C4 LED, Tail Lts, 12v, Orange | HAND HELD LIGHT | <p>There will be four (4) Streamlight, Fire Vulcan, Model #44451, hand lights provided with a vehicle mount with 12VDC direct wire charging rack and quick release buckle strap mounted final mounting at pickup, 1 at near each rear facing seat, 1 near the officer, 1 in D1.</p> <p>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.</p> |
| 0568369 | Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010, Dash CF | CAB INSTRUMENTATION | <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>Gauges</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"> Voltmeter gauge (Volts) Low volts (11.8 VDC) Amber indicator on gauge assembly with alarm High volts (15 VDC) Amber indicator on gauge assembly with alarm 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 <p>All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.</p> <p>Indicator Lamps</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"> 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.

0606017 SP Light, Do Not Move Apparatus, WIn VTX609R Red LED 2lts, DS PS Indicator

"DO NOT MOVE APPARATUS" INDICATOR

There will be two (2) Whelen, Model VTX609R, red LED indicator lights with chrome trim located in the driving compartment. The lights will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

One (1) light will be installed over the driver's position.

One (1) light will be installed over the passenger's position in the cab.

One light will indicate the status of the doors on the driver's side of the apparatus and one light will indicate the status of the doors on the passenger's side and rear of apparatus.

All other items that activate the "Do Not Move Truck" indicator light will activate both flashing red indicator lights.

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, | <p>DO NOT MOVE TRUCK MESSAGES</p> <p>Messages will be displayed on the Command Zone LCD 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"> Do Not Move Truck DS Cab Door Open (Driver Side Cab Door Open) PS Cab Door Open (Passenger's Side Cab Door Open) DS Crew Cab Door Open (Driver Side Crew Cab Door Open) PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open) DS Body Door Open (Driver Side Body Door Open) PS Body Door Open (Passenger's Side Body Door Open) Rear Body Door Open DS Ladder Rack Down (Driver Side Ladder Rack Down) PS Ladder Rack Down (Passenger Side Ladder Rack Down) Deck Gun Not Stowed Lt Tower Not Stowed (Light Tower Not Stowed) Fold Tank Not Stowed (Fold-A-Tank Not Stowed) Aerial Not Stowed (Aerial Device Not Stowed) Stabilizer Not Stowed Steps Not Stowed Handrail Not Stowed <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> |
| 0611681 | Switching, Cab, Membrane, Impel/Velocity/Quantum, Dash CF, AXT WiFi MUX | <p>SWITCH PANELS</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 eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliques. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access. Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.</p> <p>The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.</p> |
| 0555915 | Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocity | <p>WIPER CONTROL</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>HOURLMETER - AERIAL DEVICE</p> <p>The following aerial hour meter messages will be included in the information centers:</p> <ul style="list-style-type: none"> 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. |
| 0002615 | Switch, Aerial 12V Master | <p>AERIAL MASTER</p> <p>There will be a master switch for the aerial operating electrical system provided.</p> |
| 0032828 | No PTO switch req'd - w/aerial piggyback | |
| 0548004 | Wiring, Spare, 15 A 12V DC 1st | <p>SPARE CIRCUIT</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"> The positive wire will be connected directly to the battery power The negative wire will be connected to ground Wires will be protected to 15 amps at 12 volts DC Power and ground will terminate per IP layout Termination will be with 15 amp, power point plug with rubber cover Wires will be sized to 125 percent of the protection The circuit(s) may be load managed when the parking brake is set. |

| 0585914 | Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 1st | <p style="text-align: right;">ATTACHMENT 2</p> <p>SPARE CIRCUIT 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: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 20 amps at 12 volts DC. Power and ground will terminate in D1 and P1 of the trailer body, locations to be determined at pickup, front bulkhead. Termination will be to a Blue Sea System, Model 5025, 6 circuit with negative bus bar. The terminal block will include a cover with circuit labels. Wires will be sized to 125% of the protection. 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>SPARE CIRCUIT 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: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 20 amps at 12 volts DC. Power and ground will terminate to be located at pickup, behind officer seat. 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. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.</p> |
| 0797189 | Wiring, Spare, 4.8 A 12V DC, USB Termination Blue Sea 1045 1st | <p>SPARE CIRCUIT There will be one (1) dual USB fast charge socket mounts installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery switched power. The negative wire will be connected to ground. Wires will be protected to 4.8 amps at 12 volts DC. The USB socket mount will be per IP layout. Termination will be a Blue Sea Systems part number 1045 dual USB charger socket. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is applied.</p> |
| 0566101 | Recess, Dash Panel, Officer Side, Vel/Imp | <p>DASH PANEL RECESS 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> |
| 0615386 | Vehicle Information Center, 7" Color Display, Touchscreen, MUX | <p>INFORMATION CENTER An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing. The information center will have the following specifications: 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</p> |
| | | <p>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.</p> <p>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</p> |

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.

0615121

Vehicle Information Center, 7" Color Display, MUX, Additional, Touchscreen

ADDITIONAL INFORMATION CENTER

There will be one (1) information center(s) each employing a 7.00" diagonal touch screen color LCD display located on the right side engine tunne.

The information center(s) will have the following specifications:

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 equipped)

Foam Level (if equipped)

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 indicate
 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)
 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.

Vehicle Data Recorder w/CZ Display
Seat Belt Monitor

VEHICLE DATA RECORDER

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

Vehicle Speed - MPH
Acceleration - MPH/sec
Deceleration - MPH/sec
Engine Speed - RPM
Engine Throttle Position - % of Full Throttle
ABS Event - On/Off
Seat Occupied Status - Yes/No by Position
Seat Belt Buckled Status - Yes/No by Position
Master Optical Warning Device Switch - On/Off
Time - 24 Hour Time
Date - Year/Month/Day

Seat Belt Monitoring System

A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

Seat Occupied & Buckled = Green LED indicator illuminated
Seat Occupied & Unbuckled = Red LED indicator with audible alarm
No Occupant & Buckled = Red LED indicator with audible alarm
No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen will become active on the Command Zone color display when:
The home screen is active:

and there is any occupant seated but not buckled or any belt buckled with an occupant.
and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

ATTACHMENT 2

0780137

SP

Intercom, David Clark, 5-Pos, 2-
Radio, (D,O,RPTT), 2obC, TC, 3805

INTERCOM SYSTEM

A five (5) position intercom system with single radio interface capability at the driver and officer positions and remote push to talk buttons located TBD will be provided. Two (2) outboard crew cab positions and the tiller operator will have radio listen / intercom only.

The following David Clark components will be supplied with this system:

One (1) U3805 radio cord junction module
Two (2) U3815 Radio Interface Modules
Two (2) Remote Push To Talk button kits
One (1) U3800 Intercom Module (1 Crew)
One (1) U3802 Intercom Module (1 Crew)
One (1) C3820 Power Cable
One (1) U3801 Intercom Module (Tiller)
All necessary cables and connectors

0637058

David Clark Universal Radio
Interfaces Included with Single/Dual
System

RADIO / INTERCOM INTERFACE INCLUDED

All radio interfaced stations will have universal radio interfaces installed. The interface wiring will be routed within the cab to Motorola APX 7000 .

0589947

Headset, David Clark, H3432 Over
The Head, Flex Mic, Push On Push
Off

OVER THE HEAD HEADSET

There will be five (5) over the head, headset(s) provided each seat.

Each David Clark, Model H3432, headset will feature:

5' Coiled cord
Noise cancelling electric microphone
Flexible microphone boom rotates 200 degrees for left or right dress
Microphone on/off button
Comfort Gel Earseals
23 dB noise reduction

0681408

Hangers For Headsets, NFPA, Each

HEADSET HANGERS

There will be five (5) headset hanger(s) installed driver's seat, officer's seat, passenger's side outboard forward facing seat, tiller operator seat and rear, center, forward facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

0559156

Install Customer Provided Two-Way
Radio(s)

TWO WAY RADIO INSTALLATION

There will be one (1) customer supplied two way radio(s) sent to the apparatus manufacturers preferred radio installer to be installed PS overhead, loc 6 per the shipping document.

No antenna mount or whip will be included in this option.

Specific radio shipping requirements will be followed.

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| 0687904 | Antenna Mount, Custom Chassis, Cable Routed to Behind Officer Seat | <p>RADIO ANTENNA MOUNT</p> <p>There will be three (3) standard 1.125", 18 thread antenna-mounting bases to be installed behind officer seat on the cab roof with high efficiency, low loss, coaxial cable(s) routed to behind the officer seat. A weatherproof cap will be installed on the mount.</p> |
| 0653526 | Camera, Pierce, Driver Mux, Rear Camera Only | <p>VEHICLE CAMERA SYSTEM</p> <p>There will be a color vehicle camera system provided with the following:</p> <p>One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse</p> <p>The camera images will be displayed on the driver's vehicle information center display. Audio from the microphone on the active camera will be emitted by an amplified speaker with volume control located behind the driver seat.</p> <p>The following components will be included:</p> <p>One (1) SV-CW134639CAI, camera</p> <p>One (1) amplified speaker (if applicable)</p> <p>All necessary cables</p> |
| 0653350 | Guards, Vehicle Camera(s), Painted Smooth Aluminum | <p>VEHICLE CAMERA GUARDS</p> <p>There will be one (1) smooth, tapered aluminum guard(s) fastened over the cab / body camera(s) located over camera on back of tiller cab. The guards will be painted to match the surface they are attached to.</p> |
| 0785423 | SP Camera, Pierce, 7" LCD tiller Cab, RS, LS Fwd Fcng Tiller Cam, Turn | <p>VEHICLE CAMERA SYSTEM</p> <p>There will be a color vehicle camera system provided with the following:</p> <p>One (1) camera located on the right side behind the rear wheels on a bracket to clear the fender crowns of the tiller trailer, pointing forward, displayed automatically when the right turn signal is activated.</p> <p>One (1) camera located on the left side behind the rear wheels on a bracket to clear the fender crowns of the tiller trailer, pointing forward, displayed automatically when the left turn signal is activated.</p> <p>There will be two (2) 7.00" LCD displays, one (1) each side of the tiller cab dash to view the respective side cameras.</p> <p>The following components will be included:</p> <p>Two (2) MO700136DC, display</p> <p>Two (2) CS134404CI, side cameras</p> <p>All necessary cables and splitters</p> |
| 0615100 | Pierce Command Zone, Advanced Electronics & Control System, Diag LEDs, Vel, WiFi | <p>ELECTRICAL POWER CONTROL SYSTEM</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>Solid-State Control System</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"> Green LED indicator light for module power Red LED indicator light for network communication stability status Control system self test at activation and continually throughout vehicle operation No moving parts due to transistor logic Software logic control for NFPA mandated safety interlocks and indicators Integrated electrical system load management without additional components Integrated electrical load sequencing system without additional components Customized control software to the vehicle's configuration Factory and field re programmable to accommodate changes to the vehicle's operating parameters Complete operating and troubleshooting manuals USB connection to the main control module for advanced troubleshooting <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> <p>Module circuit board will meet SAE J771 specifications</p> <p>Operating temperature from -40C to +70C</p> |

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.

ATTACHMENT 2

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, Cummins, Paccar

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.

0098841 Batteries, (6) Deka Grp 31, 1000 CCA each, Threaded Stud

BATTERY SYSTEM

Six (6) 12 volt, Deka, Model 1231MF, maintenance free group 31 batteries that include the following features, each, will be provided:

1000 CCA (cold cranking amps)

185 reserve capacity

High cycle

Ref. CA of 1190 at 0 degrees Fahrenheit

185 reserve capacity

Threaded studs

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.

0123174 Battery Compartment, Imp/Vel

BATTERY COMPARTMENTS

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.

JUMPER STUDS

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.

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| 0579436 | Charger, Sngl Sys, Kussmaul, 1200, 091-187-12-Remote, 40 Amp Bar Display | <p>BATTERY CHARGER</p> <p>There will be a Kussmaul™ 1200, Model 091-187-12-Remote battery charger provided. A bar graph display indicating the state of charge will be provided.</p> <p>The charger will have a maximum output of 40 amps and a fully automatic regulation.</p> <p>The battery charger will be wired to the AC shoreline inlet through an AC receptacle adjacent to the battery charger.</p> |
| 0688318 | Location, Charger, Cab Behind Driver Seat, On the EMS Compt Vertical Wall | <p>Battery charger will be located in the cab behind the driver seat, on the vertical wall of the EMS compartment.</p> |
| 0531403 | Location, Bat Chrg Ind, Driver's Seat with Bracket | <p>The battery charger indicator will be located near the driver's seat riser with special bracketry.</p> |
| 0016838 | Shoreline, 30A 120V, Twist lock, NEMA L5-30 | <p>SHORELINE</p> <p>There will be one (1) 30 amp 120 volt AC twist lock inlet(s) NEMA L5-30 with gray cover(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.</p> <p>The shoreline(s) will be connected to battery charger and block heater.</p> <p>A mating connector body will also be supplied with the loose equipment.</p> <p>There will be a label installed near the inlet(s) that state the following:</p> <p>Line Voltage Current Rating (amps) Phase Frequency</p> |
| 0026800 | Shoreline Location | <p>The shoreline receptacle will be located in the driver side lower step well of cab.</p> |
| 0036802 | Sub Feed Breaker Box Cutler Hammer, For Shoreline | <p>SUB FEED CIRCUIT BREAKER BOX (shoreline)</p> <p>A Cutler Hammer sub feed box will be supplied to protect the on board circuits when an auxiliary power source is used.</p> <p>The box will be installed in the mount high on forward wall of D9.</p> <p>The sub feed box will distribute power to specific circuits in the vehicle.</p> <p>A directory for each breaker will be provided adjacent to the circuit breaker panel.</p> <p>Identification of circuits will be done in a durable manner that provides years of service.</p> |
| 0783395 | Transfer Switch, Generator to Shoreline 30 Amp and Under | <p>GENERATOR TO SHORELINE TRANSFER SWITCH</p> <p>There will be an automatic transfer switch between the onboard generator and the shoreline inlet.</p> <p>The loads connected to the transfer switch will be power from the onboard generator when the generator is running.</p> |
| 0647728 | Alternator, 430 amp, Delco Remy 55SI | <p>ALTERNATOR</p> <p>A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). 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> |
| 0686615 | Set Command Zone Clock To Pacific Standard Time | |

ELECTRONIC LOAD MANAGER**ATTACHMENT 2**

An electronic load management (ELM) system will be provided that monitors the vehicle's 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)

0736670

Headlights, Rect LED, HiViz FT-4X6-4KIT, AXT/DCF/Enf/Imp/Sab/Vel, Halo Alt Flash

HEADLIGHTS WITH HALO FLASH

There will be a HiViz part number FT-4X6-4KIT, that includes four (4) 4.00" high x 6.00" long rectangular LED lights with "Halo" parking lamp illumination around the outside of the lamps mounted in the front quad style housing. The headlights to include chrome bezels on each side of the cab grille:

the outside lamp on each side will contain a part number FT-4X6-HL with low beam LEDs

the inside lamp on each side will contain a part number FT-4X6-H with high beam LEDs

the "Halo" around the headlights will be controlled by the headlight/parking light switch

the lights will be controlled through the headlight switch

The "Halo" around the headlights will flash alternately from driver side to passenger side when emergency master switch is on, a "Halo Flash" switch in the cab is on, and the parking brake is released.

0648425

Light, Directional, WIn 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.

0648258

Light, Directional, WIn M6T LED Arrow, 15 Degree Angle Bracket, Additional

ADDITIONAL DIRECTIONAL LIGHT

There will be two (2) Whelen, Model M6T, amber LED arrow directional lights provided on the rear wall of the transverse compartment on the tractor, near the kingpin.

Each light will be surface mounted in a 15 degree angle bracket.

0620054

Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts

INTERMEDIATE LIGHT

There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.

| Item Number | Description | Requirement | ATTACHMENT 2 |
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| 0648074 | Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts | <p>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.</p> | |
| 0534987 | Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts, Aerial | <p>REAR CLEARANCE/MARKER/ID LIGHTING There will be three (3) Truck-Lite®, Model 33050R, LED lights used as identification lights recessed and located at the rear of the apparatus per the following: As close as practical to the vertical centerline Centers spaced not less than 6.00" or more than 12.00" apart Red in color All at the same height There will be two (2) Truck-Lite, Model 33050R, LED lights recessed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following: To indicate the overall width of the vehicle One (1) each side of the vertical centerline As near the top as practical Red in color To be visible from the rear All at the same height There will be two (2) Truck-Lite, Model 33050R, LED lights recessed on the side of the apparatus as marker lights as close to the rear as practical per the following: To indicate the overall length of the vehicle One (1) each side of the vertical centerline As near the top as practical Red in color To be visible from the side All at the same height 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. 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> | |
| 0514453 | Light, Marker End Outline, Rubber Arm, LED Marker Lamp | <p>MARKER LIGHTS There will be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear of the trailer body. The amber lens will face the front and the red lens will face the rear of the truck. These lights will be activated with the running lights of the vehicle.</p> | |
| 0551870 | Lights, Tail, WIn M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir w/Flange | <p>REAR FMVSS LIGHTING The rear stop/tail and directional LED lighting will consist of the following: Two (2) Whelen®, Model M6BTT, red LED stop/tail lights Two (2) Whelen, Model M6T, amber LED arrow turn lights The lights will be provided with color lenses. Each light will be installed separately at the rear with Whelen, Model M6FC, chrome flanges.</p> | |
| 0551758 | Lights, Backup, WIn M6BUW, LED, Flange Feature | <p>Two (2) Whelen Model M6BUW, LED backup lights, will be provided with a flange.</p> | |
| 0664481 | Bracket, License Plate & Light, P25 LED | <p>LICENSE PLATE BRACKET There will be one (1) license plate bracket mounted on the rear of the body. 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> | |
| 0589905 | Alarm, Back-up Warning, PRECO 1040 | <p>BACK-UP ALARM 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> | |
| 0578264 | Flash Pattern, California Title13, LED Warning Lights | <p>WARNING LIGHT FLASH PATTERN 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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| 0658406 | | Light, Marker, Britax Rubber Arm, Model 427.200.LB, Amber/Amber, Qty/Loc | <p>MARKER LIGHTS</p> <p>There will be one (1) pair of amber marker lights with Amber lens located rear of P1 and P1. There will be an amber lens that faces the front and the rear of the truck. These lights will be activated with the running lights of the vehicle.</p> |
| 0059809 | | Light, Marker, Weldon, 9186-1500 LED, Location | <p>MARKER LIGHTS</p> <p>There will be one (1) pair of Weldon, Model: 9186-1500-10 or 9186-1500-20, LED marker lights installed on this apparatus, one (1) light each side per the quantity selected. These lights will be activated with the headlight switch. These lights will be located on top of the trailer catwalk directly above the tiller trailer axle on each side. These lights will be installed into the rub rail or with metal flanges to protect them from most damage. Amber lights will be used except for the rear most light at the rear of the apparatus which will be red.</p> |
| 0634118 | SP | Mounting, Flange for Marker Type Light, Treadplate, Pair | <p>LIGHT MOUNTING</p> <p>There will be one (1) pair of light mounting bracket(s) provided on the apparatus. Each bracket will be made from aluminum treadplate material and provide an area for a light to be mounted. It will be completely enclosed so the light will not be damaged from the back. The mounting will mount on the centered with the rear tiller axle just below the side sheet flange so the light can be mounted shining straight up per job 27235&#x0D; .</p> |
| 0769420 | | Lights, Perimeter Cab, Amdor AY-LB-12HW020 LED 4Dr | <p>CAB PERIMETER SCENE LIGHTS</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. 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>PUMP HOUSE PERIMETER LIGHTS</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. 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. The light will be activated when the battery switch is on, and controlled by the same means as the body perimeter lights.</p> |
| 0763173 | | Lights, Perimeter Body, Amdor AY-LB-12HW012 LED 4lts, Turntbl/Rr Stp, Tiller | <p>BODY PERIMETER SCENE LIGHTS</p> <p>There will be four (4) Amdor®, Model AY-LB-12HW012, 190 lumen, 12.00" long, white 12 volt DC LED strip lights provided. The lights will be mounted in the following locations: One (1) light will be provided under the driver's side turntable access steps. One (1) light will be provided under the driver's side tiller cab access steps. One (1) light will be provided under the passenger's side tiller cab access steps. One (1) light will be provided under the passenger's side turntable access steps. The perimeter scene lights will be activated when a switch within reach of the driver is activated and the parking brake is applied.</p> |
| 0769570 | | Lights, Perimeter, Amdor AY-LB-12HW020 20" LED, Brkt | <p>ADDITIONAL PERIMETER LIGHTS</p> <p>There will be eight (8) lights - Amdor® Model AY-LB-12HW020, 350 lumens, 20.00" long, with white LED's installed with one (1) light under compartment LS1, one (1) light under compartment LS3, one (1) light under compartment RS1, one (1) light under compartment RS5, one (1) light under compartment LS6, one (1) light under compartment RS7, one (1) light under the compartment LS5 and LS6 door jamb and one (1) light under the compartment RS5 and RS6 door jamb. With the chassis battery switch energized, the lights will be activated by the same means as the body perimeter lights.</p> |
| 0644535 | | Lights, Step, P25 LED, Tiller, Prk Brk | <p>STEP LIGHTS</p> <p>There will be a total of sixteen (16) white LED step lights provided for access to the tiller cab and turntable. 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. The step lights will be activated with the battery switch is on and the parking brake is applied. All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.</p> |
| 0738261 | SP | Lights, Tractor Scene, WIn M9LZC LED, Back Of Water Tank | <p>SCENE LIGHTS</p> <p>There will be two (2) Whelen®, Model M9LZC, 6.50" high x 10.37" wide x 1.37" deep scene light (s) with white LEDs and chrome trim installed on the rear exterior wall of the water tank. The light(s) will be controlled when the aerial master switch is activated. The light(s) may be load managed when the parking brake is applied.</p> |

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| 0785841 | SP Light, WIn, Pair, 12V PSL2B* SlimLine, Bail Brkt, Tiller Cab Side, SP Sw | <p>12 VOLT LIGHTING</p> <p>There will be two (2) Whelen Pioneer SlimLine, Model PSL2B, flood light(s) installed in bail brackets located high on the tiller cab.</p> <p>The painted parts of this light assembly to be black.</p> <p>The light(s) selected above will be controlled by the following: by a switch in the tiller cab</p> <p>Two (2) additional cup switches will be provided one (1) each side in the tiller access steps area. These light(s) may be load managed when the parking brake is set</p> |
| 0725783 | Lights, Centering, Cab Roof, Tlr, Clpsbl, Attwood NV2002SS-7, Red/Grn LED | <p>CENTERING LIGHT</p> <p>There will be an Attwood, Model NV2002SS-7, split red/green LED light installed with a 12.00" long tall collapsible mast, centered on the crew cab roof. The light will be used by the tillerman to center the tiller trailer to the chassis tractor.</p> <p>The light will be wired to the headlight switch.</p> |
| 0776075 | Light, Visor, WIn, 12V P*H1* Pioneer LED | <p>12 VOLT LIGHTING</p> <p>There will be one (1) Whelen® Model P*H1*, 8,875 lumens 12 volt DC LED light(s) with a combination of flood and spot optics provided on the front visor, centered.</p> <p>The housing(s) painted parts of this light assembly to be black.</p> <p>The light(s) will be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.</p> <p>These light(s) may be load managed when the parking brake is applied.</p> |
| 0768059 | Lights, WIn, PCPSM2* Pioneer, 12 VDC, 2nd | <p>12 VOLT DC SCENE LIGHTS</p> <p>There will be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC powered light(s) with white LEDs installed on the cab located, above driver CC window, high.</p> <p>The surface mount housing(s) will be provided with a chrome cover.</p> <p>The light(s) will be activated by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and by a switch located next to the breaker panel.</p> <p>The light(s) may be load managed when the parking brake is applied.</p> |
| 0768061 | Lights, WIn, PCPSM2* Pioneer, 12 VDC, 1st | <p>12 VOLT DC SCENE LIGHTS</p> <p>There will be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC powered light(s) with white LEDs installed on the cab located, above passenger CC window, high.</p> <p>The surface mount housing(s) will be provided with a chrome cover.</p> <p>The light(s) will be activated by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and by a switch located next to the breaker panel.</p> <p>The light(s) may be load managed when the parking brake is applied.</p> |
| 0744629 | Lights, WIn, PSL1** Pioneer, 12 VDC, 2nd | <p>12 VOLT DC SCENE LIGHTS</p> <p>There will be two (2) Whelen® Model PSL1**, 4,500 lumens 12 volt DC powered light(s) with white LEDs and with flood optics installed on the apparatus cab located, under driver side of the trailer body ahead and behind the trailer axle, to be used for cornering.</p> <p>The painted parts of this light assembly to be black.</p> <p>The light(s) to be installed in a chrome 15 degree vertical recessed bracket.</p> <p>The lights will be activated when the tiller driver turn signal arm is pulled towards the operator lights are activated, pulling the arm towards the operator again deactivates the lights.</p> <p>The light(s) may be load managed when the parking brake is applied.</p> |
| 0744631 | Lights, WIn, PSL1** Pioneer, 12 VDC, 1st | <p>12 VOLT DC SCENE LIGHTS</p> <p>There will be two (2) Whelen® Model PSL1**, 4,500 lumens 12 volt DC powered light(s) with white LEDs and with flood optics installed on the apparatus cab located, under driver side of the trailer body ahead and behind the trailer axle, to be used for cornering.</p> <p>The painted parts of this light assembly to be black.</p> <p>The light(s) to be installed in a chrome 15 degree vertical recessed bracket.</p> <p>The lights will be activated when the tiller driver turn signal arm is pulled towards the operator lights are activated, pulling the arm towards the operator again deactivates the lights.</p> <p>The light(s) may be load managed when the parking brake is applied.</p> |
| 0894988 | SP Lights, WIn, PCPSM2* Pioneer, 12 VDC, 3rd | <p>12 VOLT DC SCENE LIGHTS</p> <p>There will be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC powered light(s) with white LEDs installed on the cab located, at the rear of the tiller cab, below the marker lights.</p> <p>Encroachment on the window is acceptable.</p> <p>The surface mount housing(s) will be provided with a chrome cover.</p> <p>The light(s) will be activated by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel, by a switch in the tiller cab and by a switch in a stainless steel cup located on the driver's side at the rear of the apparatus no more than 72.00" from the ground.</p> <p>The light(s) may be load managed when the parking brake is applied.</p> |
| 0532322 | Not Required, Hose Bed Lights, Alt. Rear Scene Lights, Aerials | |
| 0645677 | Lights, Not Required, Rear Work, Alt. 12 Volt Lights At Rear Body | |

ATTACHMENT 2

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| 0709438 | Light, Walking Surf, FRP Flood, LED | WALKING SURFACE LIGHT There will be Model FRP, 4" round black 12 volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body. The light(s) will be activated when the body step lights are on. |
| 0090655 | Aerial, Tiller, Alum Body | |
| 0554269 | Body Skirt Height, 18" | |
| 0040882 | Tank, Water, 300 Gallon, Poly, Tiller | WATER TANK It will have a capacity of 300 gallons and will be constructed of polypropylene plastic in a rectangular shape. The water tank will be mounted directly above the water pump. The joints and seams will be nitrogen welded inside and out. The tank will be baffled in accordance with NFPA Bulletin 1901 requirements. The baffles will have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments. 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. The transverse partitions extend from 4" off the bottom to the underside of the top cover. All partitions interlock and will be welded to the tank bottom and sides. The tank top will be constructed of .50" polypropylene. It will be supported to keep it rigid during fast filling conditions. Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes. A sump will be provided at the bottom of the water tank. The sump will include a drain plug and the tank outlet. Tank will be installed in a fabricated "cradle" assembly constructed of structural steel. A heavy duty water tank restraint will be provided. Sufficient crossmembers are provided to properly support bottom of tank. Crossmembers are constructed of steel bar channel or rectangular tubing. Tank "floats" 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. Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle. Tank mounting system is approved by the manufacturer. |
| 0003405 | Overflow, 4.00" Water Tank, Poly | Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long. Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover. 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. |
| 0028107 | Not Required, Foam Cell Modification | |
| 0003429 | Not Required, Direct Tank Fill | |
| 0043076 | Not Required, Hose Bed, Tiller | |
| 0894249 | Not Required, Tiller | |
| 0013481 | Not Required, Hose Bed Capacity | |
| 0003512 | Running Boards, Ascendant, PAL | RUNNING BOARDS 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. Running boards will be 13.00" deep and are spaced away from the body 0.50". A splash guard will be provided to keep road dirt or water from splashing up onto the pump panels. The running boards will have a riser on the body to protect the painted surface from damage by stepping on the running boards. The entire surface of the running boards will be covered with bright aluminum treadplate. |
| 0690023 | Wall, Rear, Smooth Aluminum | SMOOTH ALUMINUM REAR WALL The rear wall will be smooth aluminum. |

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| 0029503 | Tow Eyes (2), Painted, Aerial | <p>TOW EYES 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> |
| 0090670 | Construction, Compt, Alum, Tiller | <p>COMPARTMENTATION Body and compartments will be fabricated of .125", 5052-H32 aluminum. Side compartments will be an integral assembly with the rear fenders. Circular fender liners will be provided for prevention of rust pockets and ease of maintenance. Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip. The compartment door opening will be framed by flanging the edges in 1.75" and bending out again .75" to form an angle. Drip protection will be provided above the doors by means of bright aluminum extrusion or formed bright aluminum treadplate. 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 welded. Side compartment covers will be separate from the compartment tops. All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury. 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. The compartmentation 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>AGGRESSIVE WALKING SURFACE 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>LOUVERS 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> |
| 0632324 | SP Compt, Single Tractor Reservoir, Lap Door, 2010, 18" WB | <p>TRACTOR RESERVOIR COMPARTMENT A lap door compartment will be provided ahead of the tractor fifth wheel. The left side compartment will be 17.88" wide x 37.88" high x 8.00" deep with a clear door opening of 12.00" wide x 29.75" high. The right side will be 17.88" wide x 36.88" high x 8.00" deep with a clear door opening of 12.00" wide x 28.75" high.</p> |
| 0683231 | Compt, F/H, Trans Roll, Special Width, 6.00" Raised, 92.00" Wide, LS Front | <p>LEFT SIDE COMPARTMENTATION Left side compartmentation will consist of the following: Two (2) compartments will be provided in the front body section on the left side. Each compartment will be full-height. The forward compartment will be approximately 24.38" wide x 61.63" high x 24.50" deep with a minimum clear door opening of approximately 16.00" wide x 51.87" high. The rear compartment will be approximately 67.25" wide x 61.63" high x 24.50" deep with a minimum clear door opening of approximately 61.50" wide x 51.87" high. The upper 44.75" of each compartment will be transverse to the right side front compartmentation. Both compartments will have roll-up doors.</p> |
| 0683228 | Compt, F/H, Trans Front, Roll, 6.00" Raised, LS Center, Tiller | <p>Two (2) compartments will be provided in the center body section on the left side. Each compartment will be full-height. The forward compartment will be approximately 47.13" wide x 61.63" high x 24.50" deep with a minimum clear door opening of approximately 38.75" wide x 51.87" high. The upper 44.75" of the forward compartment will be transverse to the right side front compartmentation. The rear compartment will be approximately 44.50" wide x 61.63" high x 24.50" deep with a door opening of approximately 39.00" wide x 53.75" high. Both compartments will have roll-up doors.</p> |

| 0784035 | SP | Compt,Low F/D Frt Roll/Lift Past 90,Low Rr Lap,Spc Step,10" Rsd Fd Pnl,4" Rsd Fl | <p>Three (3) compartments will be provided in the rear body section on the driver side. The forward compartment will be approximately 61.00" wide x 28.75" deep with a door opening of approximately 61.00" wide x 28.75" high. This compartment will be located ahead of the rear wheels and will have a roll-up door.</p> <p>There will be an upper compartment above this. The compartment will be approximately 71.75" wide x 15.75" high x 13.50" deep with a clear door opening of approximately 64.50" wide x 9.75" high. This compartment will be provided with a lift-up door. The lift-up door will be provided with a cylinder that allows it to open approximately 120 degrees.</p> <p>The rearward compartment will be approximately 42.00" wide x 34.13" high x 21.25" deep. There will be a section of the forward area, approximately 15.00" from the front wall that will only be 9.00" deep. This area will be 6.00" wide. The door opening will be approximately 34.00" wide x 32.00" high. This compartment will be located behind the rear wheels and in front of the tiller cab access steps and will have a double door.</p> <p>The area directly behind the tiller cab access steps will be raised approximately 4.00" from standard to increase the rear angle of departure.</p> |
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| 0683225 | | Compt, F/H, Trans Roll, Special Width, 6.00" Raised, 92.00" Wide,RS Front,Tiller | <p>RIGHT SIDE COMPARTMENTATION</p> <p>Right side compartmentation will consist of the following:</p> <p>Two (2) compartments will be provided in the front body section on the right side. Each compartment will be full-height.</p> <p>The forward compartment will be approximately 24.13" wide x 61.63" high x 24.50" deep with a minimum clear door opening of approximately 16.00" wide x 51.87" high.</p> <p>The rear compartment will be approximately 67.25" wide x 61.63" high x 24.50" deep with a minimum clear door opening of approximately 61.50" wide x 51.87" high.</p> <p>The upper 44.75" of each compartment will be transverse to the left side front compartmentation. Both compartments will have roll-up doors.</p> |
| 0683224 | | Compt, F/H, Trans Front, Roll, 6.00" Raised, RS Center, Tiller | <p>Two (2) compartments will be provided in the center body section on the right side. Each compartment will be full-height.</p> <p>The forward compartment will be approximately 47.13" wide x 61.63" high x 24.50" deep with a minimum clear door opening of approximately 38.75" wide x 51.87" high.</p> <p>The upper 44.75" of the forward compartment will be transverse to the left side front compartmentation.</p> <p>The rear compartment will be approximately 44.50" wide x 61.63" high x 24.50" deep with a minimum clear door opening of approximately 38.75" wide x 51.87" high.</p> <p>Both compartments will have roll-up doors.</p> |
| 0784038 | SP | Compt, Low F/D Frt Roll,3 Lifts,Low Rr Lap,Spc Step,10" Rsd FPanel,4"Rsd Flr | <p>Five (5) compartments will be provided in the rear body section on the passenger side.</p> <p>The forward low compartment will be approximately 69.00" wide x 34.13" high x 24.50" deep with a door opening of approximately 61.00" wide x 28.75" high. This compartment will be located ahead of the rear wheels and will have a roll-up door.</p> <p>The forward upper compartment will be approximately 67.12" wide x 15.75" high x 13.50" deep with a clear door opening of approximately 59.44" wide x 9.75" high. This compartment will be provided with a lift-up door.</p> <p>The middle upper compartment will be approximately 64.50" wide x 15.75" high x 13.50" deep with a clear door opening of approximately 59.44" wide x 9.75" high. This compartment will be provided with a lift-up door.</p> <p>The rear upper compartment will be approximately 42.00" wide x 15.75" high x 13.50" deep with a clear door opening of approximately 37.63" wide x 9.75" high. This compartment will located in front of the tiller cab access steps and be provided with a lift-up door.</p> <p>The lift-up doors will be provided with cylinders that allows them to open approximately 120 degrees.</p> <p>The rearward compartment will be 42.00" wide x 34.13" high x 21.25" deep in the lower 30.13" of height and 9.00" deep in the remaining upper portion. There will be a section of the forward area, approximately 15.00" from the front wall that will be only 9.00" deep. This area will be 6.00" wide. The door opening will be 34.00" wide x 32.00" high. This compartment will be located directly behind the rear wheels and in front of the tiller cab access steps and have a double door.</p> <p>The area directly behind the tiller cab access steps will be raised approximately 4.00" for increased angle of departure.</p> |

Doors, Lap with "D" Handle,
Aluminum, AMDOR Rollup, Side
Compartments

SIDE COMPARTMENT DOORS

Hinged compartment doors will be lap style with double panel construction and fabricated of 0.09" 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 0.25", that is bolted or screwed on with stainless steel fasteners. A dielectric substance will be applied to each hinge fastener.

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.

Doors will be latched with recessed, polished stainless steel D-ring handles and Eberhard 106 locks.

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.

SIDE COMPARTMENT ROLL-UP DOORS

There will be ten (10) compartment doors installed on the side compartments, double faced, aluminum construction, painted one (1) color to match the lower portion of the body and manufactured by AMDOR™ brand rollup doors.

Door(s) will be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats will be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain will be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement.

Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingress.

The doors will be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.

Bottom panel flange of rollup door will be equipped with two (2) cut-outs to allow for easier access with gloved hands.

A stainless steel lift bar to be provided for opening the door and located at the bottom of each door with latches on the outer extrusion of the door frame. A ledge to be supplied over lift bar for additional area to aid in closing the door. The lift bar will be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.

All injection molded rollup door wear components will be constructed of Type 6 nylon.

Each roll-up door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

0544873

Bumper, Rear, Rub Rail, Aerial

REAR BUMPER

An aluminum rub rail will be provided at the rear of the unit. It will extend the full width of the compartments.

0639843

SP

Scuffplate, Alum 4-Way, Rear of
Engineer's Compt, Aerial**SCUFFPLATES**

The exposed rear portion of the engineer's compartment at each side will be completely covered with bright aluminum treadplate.

0597964

Guard, Rain Drip Over Door

DRIP RAIL

There will be two (2) compartment doors that include a rain drip designed to protect the compartment from water damage. The guard will be fabricated from aluminum and installed above the R1 doors.

0019845

Guard, Drip Pan, S/S, Rollup Door

DOOR GUARD

There will be ten (10) compartment doors that will include a guard/drip pan designed to protect the roll-up door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed on each roll-up door.

0004010

Scuffplate, Polished S/S Bottom of
Door Frame**DOOR FRAME SCUFFPLATE**

Eight (8) scuffplates will be provided for the lower door frame of LS1 LS2, LS8, RS1, RS2, RS3, RS4 and RS10. Each scuffplate will be polished stainless steel with a .38" lip down.

0004012

Scuffplate, Polished S/S, Inside Each
Compt Door**SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S)**

The 12 compartment doors will include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.

Scuffplate will be located LS1 (double door), LS2, LS8, RS1 (double door), RS2, RS3, RS4, RS10 and B1.

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| 0636819 | Trim, Rollup Door, Painted Job Color, by Amdor | ROLL-UP DOOR TRIM | The exterior of the aluminum trim around the door opening will be painted to match job color. There will be ten (10) compartments with the trim painted. |
| 0659353 | Lights, Compt, Amdor AY-9220 LED, Dual Lt Strip | COMPARTMENT LIGHTING | There will be nineteen (19) compartments with Amdor, Model AY-9220, white 12 volt DC LED compartment light strips. The lights will be mounted with mechanical fasteners. There will be two (2) strip lights installed vertically in each compartment opening per the latest NFPA requirements. The lights will be activated when the battery switch is on and the respective compartment door is opened. |
| 0562348 | Fasteners, Mechanical, Strip Lighting In Compartments | COMPARTMENT LIGHTING | Metal clamps will be used to retain the strip lighting in all body compartments. |
| 0603420 | Shelf Tracks, Painted, Aerial | MOUNTING TRACKS | There will be ten (10) sets of tracks for mounting shelf(s) in LS1, LS3, LS4, LS5, LS6, RS1, RS5, RS6, RS7 and RS8. 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. |
| 0687112 | Shelves, Adjustable, 500 lb Capacity, Full Width/Depth, Painted | ADJUSTABLE SHELVES | There will be 12 shelves with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum with 2.00" sides. Each shelf will be painted spatter gray. 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 will be RS1, RS5, (2) in RS6, RS8, LS3, LS4, (3) in LS6 rear of partition, . |
| 0783662 | SP | Shelves, Fixed, Inverted Left Side, Transverse Compartment, Painted | SHELF There will be one (1) shelf with a capacity of 500 lb provided full width of the upper portion of P7/D5, airbag rack to mount directly to the top of the shelf on the D5 side, as high as possible. Inverted front edge on D5 side only. 1" lip on P7 side compartment. The shelf construction will consist of 0.188" aluminum that will be painted to match the compartment interior. On the left side there will be a 2.00" downturned lip. On the right side there will be a 1.00" upturned lip. Each shelf will be fixed mounted. Each shelf will be held in place by .12" thick stamped plated brackets and bolts or angles bolted to the compartment as the engineer or shop floor see fit. |
| 0663797 | Shelves, Adj Full Width, Transverse Compartment, Painted | ADJUSTABLE SHELF | There shall be six (6) shelves with a capacity of 500 lb provided full width of the (2) in LS5, (2) in LS6, (2) in RS8 compartment. The shelf construction shall consist of 0.188" aluminum with 2.00" high sides. Each shelf shall be painted spatter gray. Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track. The shelves shall be held in place by 0.12" thick stamped plated brackets and bolts. |
| 0606445 | SP | Shelf, Adjustable, 500 lb Capacity, 1/2 Trans | HALF DEPTH ADJUSTABLE SHELF An adjustable shelf will be provided for use in a transverse side body compartment. The shelf will be constructed of 0.188" thick aluminum with 2.00" high sides. The shelf will be half depth of the transverse compartment and as wide as possible for the specified mounting location. The finish of each shelf will match that of the compartment interior. The shelf will be secured within the compartment by means of adjustable threaded fasteners. These fasteners will slide in an extruded aluminum track to provide height adjustment. The shelf will have a load capacity of 500 lb. A total of two (2) shelves will be provided P7, D5. |
| 0009155 | Tray, 500 lb, Slide-out, 1-Way, Utility, Adj Height, 3" Sides, 1/2 Trans | ONE (1) WAY SLIDE-OUT UTILITY TRAY | There will be four (4) slide-out trays provided. Each tray will be rated for up to 500 lb in the extended position. The tray(s) will be constructed of 0.19" thick aluminum for the tray bottom and special aluminum extrusions for the tray sides, ends and tracks. The corners will be welded. The tray will have 3.00" high sides, will be half (1/2) depth of the transverse compartment and will be as wide as possible for the compartment. The tray will be supported with a minimum of six (6) ball bearing rollers. The tray will slide out two thirds (2/3) of its length in one (1) direction. 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 vertical location of the tray within the compartment will be adjustable. The tray(s) will be located 2 in upper P8, 1 in D5, 1 in P7. |

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| 0797937 | SP Tray, 500 lb, Slide-Out, 1-Way, Utility, Adj, 3" Sides, 3/4 Trans, Painted | <p>ONE (1) WAY SLIDE-OUT UTILITY TRAY</p> <p>There will be two (2) slide-out trays provided. Each tray will be rated for up to 500 lb in the extended position. The tray(s) will be constructed of .19" thick aluminum for the tray bottom and special aluminum extrusions for the tray sides, ends and tracks. Each tray will be painted to match the compartment interior. The corners will be welded.</p> <p>The tray will be 3.00" high x three quarters the depth of the transverse compartment. The tray will be supported with a minimum of six (6) ball bearing rollers. The tray will slide out two thirds (2/3) of its length in one (1) direction.</p> <p>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> <p>The vertical location of the tray within the compartment will be adjustable.</p> <p>The tray(s) will be located (2) in P8 rear of the partition.</p> |
| 0785116 | SP Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides, Hydraulic Tool Mounting | <p>SLIDE-OUT FLOOR MOUNTED TRAY</p> <p>There will be one (1) 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.</p> <p>There will be a vertical mounting partition provided within the tray to mount brackets for hydraulic tools. The partition will be gusseted on the front and rear of each side to provide additional support. This mounting partition will be a height of the hydraulic tool mounts.</p> <p>Each tray will be constructed of aluminum painted spatter gray</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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> <p>The location(s) will be TBD.</p> |
| 0627831 | Tray, Floor Mounted, Slide-Out, Full Width/Full Depth, Low/Special Sides, 2G | <p>SLIDE-OUT FLOOR MOUNTED TRAY</p> <p>There will be one (1) floor mounted slide-out tray(s) provided LS8 rear of partition, ctech cabinet will be sitting on this tray. A capacity rating will not be available on this tray due to a reduced side height being less than 2.00". The tray(s) will be constructed of a minimum .13" aluminum with welded corners. The finish will be painted to match compartment interior.</p> <p>The tray(s) will be designed for maximum compartment width and depth.</p> <p>The side height of the tray(s) will be as follows: Front: no lip Rear: 2.00" high Left and Right Sides: no lip</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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> |
| 0610204 | SP Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides, 2G, Special Width | <p>SLIDE-OUT FLOOR MOUNTED TRAY</p> <p>There will be two (2) floor mounted slide-out tray(s) with 2.00" sides provided LS4. The trays will be 28.00" wide in width and located P6 should be 28" wide. D4 should be the remaining comp floor space to the right of the oil dry hopper. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of a minimum .13" aluminum with welded corners. The finish will be painted spatter gray.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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> |

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| 0647045 | Tray, Floor Mounted, Slide-Out, Full Width/Full Depth, 500lb, 2.00" Sides, 2G | <p>SLIDE-OUT FLOOR MOUNTED TRAY</p> <p>There will be four (4) floor mounted slide-out tray (4) with 500 lbs provided in P8 forward of partition. 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. The trays will be designed for maximum compartment width and depth. 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.</p> |
| 0725644 | Cabinet, Drawer Assembly, CTECH, Three Drawers, Up To 24" Wide | <p>DRAWER ASSEMBLY</p> <p>A slide-out drawer assembly will be installed in the lower portion of LS7, box not to exceed the height of the transverse floor of the trailer body. The clear dimensions of the first drawer starting at the top will be 2.00" with a face plate that is 3.00" high x 21.00" deep. The clear dimensions of the second drawer will be 3.75" with a face plate that is 4.00" high x 21.00" deep. The clear dimensions of the third drawer will be 3.75" with a face plate that is 4.00" high x 21.00" deep. Each drawer will be the same width and not exceed 24.00". The drawers will have a capacity of 250 pounds. The drawers will be mounted in a cabinet housing constructed of light gray powder coated aluminum with anodized aluminum frames. The housing will be 24.00" deep, and completely enclose the drawer. A full-length aluminum extruded rail will be provided at the top edge of each drawer. This rail will act as the latching mechanism as well as the handle for each drawer. There will be a total of one (1) provided.</p> |
| 0899862 | SP Cabinet, Drawer Assembly, CTECH, Three Drawers, Up To 24" Wide, 23.00" Deep | <p>DRAWER ASSEMBLY</p> <p>A slide-out drawer assembly will be installed RS8 in the foreword portion of the compartment, on the slide out tray, not to exceed the transverse compartment floor height. The clear dimensions of the first drawer starting at the top will be 2.00" with a face plate that is 3.00" high x 20.00" deep. The clear dimensions of the second drawer will be 2.75" with a face plate that is 3.00" high x 20.00" deep. The clear dimensions of the third drawer will be 4.75" with a face plate that is 5.00" high x 20.00" deep. Each drawer will be the same width and not exceed 24.00". The drawers will have a capacity of 250 pounds. The drawers will be mounted in a cabinet housing constructed of light gray powder coated aluminum with anodized aluminum frames. The housing will be 23.00" deep, and completely enclose the drawer. A full-length aluminum extruded rail will be provided at the top edge of each drawer. This rail will act as the latching mechanism as well as the handle for each drawer. There will be a total of one (1) provided.</p> |
| 0726429 | Partition, Vertical Compt, Transverse Compt, Aerials/HDRs | <p>PARTITION IN TRANSVERSE COMPARTMENT</p> <p>One (1) partition will be bolted in 1 in P8/D6, centered to separate driver side and passenger side. Each partition will be the full vertical height of the compartment.</p> |
| 0726439 | Partition, "L" Shaped in Compartment | <p>"L" SHAPED PARTITION IN COMPARTMENT</p> <p>One (1) partition will be bolted in D7 for breaker box to face straight out of the compartment. Use partition to create a false wall to mount breaker box on. There will be dead space behind the partition, L-shaped at the top to meet up with the back wall. mount close to door. . Each partition will be "L" shaped, painted spatter gray.</p> |
| 0784997 | SP False Wall Panels, w/ Access Doors, Two (2), Painted | <p>ACCESS PANEL</p> <p>There will be a mechanically fastened false wall provided to help close off the CAFS system within the compartment located on the drivers and passengers side of the Trimax system. Trimax will be completely enclosed. A false wall will be provided on each outboard side of the CAFS system. The wall will have an access door provided within it to access the tank if need be. The false wall will be painted to match the compartment interior.</p> |
| 0635915 | Mounting Plate, 3/16" Alum | <p>MOUNTING PLATE</p> <p>A quantity of one (1) 3/16" thick aluminum mounting plate(s) will be provided. The aluminum plate (s) will be painted spatter gray to match compartment interior. The plate(s) will be same dimensions as the top of the ctech cabinet in size and mounted in P8 mounted on top of the ctech cabinet with a 1" lip all the way around. Only as deep/wide as the ctech cabinet so that it will pull out with the ctech and the floor tray. .</p> |

| Item ID | Description | Component Name | Details |
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| 0076795 | Bracket, SCBA, Zico, ULLH, Load & Lock, Mounted | SCBA HOLDER | <p style="text-align: right;">ATTACHMENT 2</p> <p>A total of one (1) Ziamatic model ULLH SCBA holder bracket. This bracket will include a backplate, two seats, a footplate and the model LLS ("Load & Lock") strap to hold the bottle in the bracket. The bracket seats will be a "one size fits all" style seat and will accommodate SCBA cylinders from the high pressure 30-minute to the high pressure 60-minute. The brackets will be mounted D1, mounted at pickup.</p> |
| 0659845 | Cable Release, Slideout Tray, IAT Std Latch | CABLE RELEASE | <p>A cable release will be provided to allow one handed operation of the latch for slide out trays. The cable will be plastic coated.</p> <p>A total of four (4) will be provided on all roll out trays, 2 in P8, 1 in D5, 1 in P7.</p> |
| 0678715 | Compt, At Rear Between Tow Eyes, Smooth Alum Sngl Pan Door w/D-Latch, Tiller | COMPARTMENT BETWEEN TOW EYES | <p>A compartment will be supplied at the rear of the unit, above the rear bumper. It will be 8.50" high x 25.75" wide x 27.00" deep. The compartment will have a single-pan smooth aluminum drop-down door with a D-ring latch.</p> |
| 0659383 | Matting, Turtle Tile w/Ramp, Compt Floors | MATTING, COMPARTMENT FLOOR | <p>Turtle Tile compartment matting will be provided in 12 compartments on the compartment floor. The locations are, LS1, LS2, LS3, LS4, RS1, RS2, RS3, RS4, .</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 | MATTING, COMPARTMENT SHELVING | <p>Turtle Tile compartment matting will be provided in 30 shelves. The locations are, each shelf and tray.</p> <p>The color of the Turtle Tile will be black.</p> |
| 0042642 | Rack, Air Bags inside Compt, 5-Slot | AIR BAG STORAGE | <p>There will be a rack installed for storing five (5) air bags in the On top of the fixed shelf in D5 compartment.</p> <p>The rack will be fabricated from painted spatter gray .125" aluminum, painted to match the compartment interior. The fire department will provide exact sizes of air bags prior to construction and it will be configured An airbag rack that measures 30" wide. It will have five 1.5" wide openings. Three of the openings will be 24" deep and the remaining two openings will be 44" deep.</p> |
| 0796216 | Floor Extension, Compartment, 1.00" Downturned Lip | FLOOR EXTENSION | <p>There will be a compartment floor extension provided. The floor extension will extend from the area over the frame rails to within an inch of the compartment door. The floor extension will have a 1.00" vertical downturned lip and no return flange.</p> <p>A total of two (2) will be provided and located LS7, on the top of the Ctech box.</p> |
| 0024016 | Rub Rail, Aluminum Extruded, Side & Rear of Body | RUB RAIL | <p>Bottom edge of the side and rear of the body compartments will be trimmed with a bright aluminum extruded rub rail.</p> <p>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> |
| 0510626 | Fender Crowns, Rear, S/S, Wider Than Std. | BODY FENDER CROWNS | <p>Stainless steel fender crowns will be provided around the rear wheel openings. These fender crowns must be wide enough to prevent splashing onto the body from the specified tires.</p> <p>A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering.</p> <p>A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.</p> |
| 0626229 | Handrails, Side Pump Panels, Per Print | HANDRAILS | <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> |

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| 0558496 | | Handrails, Access to Tiller Cab, U-Shaped, Knurled Aluminum, Front Each Side | <p>TILLER CAB HANDRAILS A U-shaped handrail will be installed on each side of the truck on the forward side of the tiller cab access steps. The handrail will extend upward from the existing tiller cab handrail and form a U-shape approximately 10.00" high above the top of the body. The standard handrail will be provided on the rearward side of the steps. Handrails will be 1.25" diameter anodized aluminum extrusion, with a knurled design, 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. Drain holes will be provided in the bottom of all vertically mounted handrails.</p> |
| 0789473 | SP | Compt, Air Bottle, Single, 8.50" Round, Fender Panel, Aerial | <p>SINGLE AIR BOTTLE STORAGE COMPARTMENT A quantity of four (4) air bottle compartment(s) will be provided on the left side forward of the rear wheels, on the left side rearward of the rear wheels, on the right side forward of the rear wheels and on the right side rearward of the rear wheels. Each compartment will be in the form of a 8.50" round tube designed to hold one (1) air bottle and be of adequate depth to accommodate different sizes. A painted stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal. Flooring will be rubber lined and have a drain hole.</p> |
| 0785424 | SP | Storage Bin, Air Bottle, Flat Mount | <p>AIR BOTTLE STORAGE BIN A storage bin will be provided for storage of 12 air bottles. This storage bin will be installed RS9. Each separate air bottle storage compartment will be 7.50" square x 23.00" deep. The storage bin will be formed out of aluminum and the flooring lined with Dura-surf. The storage bin will be mounted flat in order to maximize space in the specified location.</p> |
| 0636598 | SP | Restraint, Nylon Webbing, Air Bottle Storage Bin | <p>RESTRAINT, AIR BOTTLE STORAGE BIN Air bottles stored in the air bottle storage bin located in the RS9 compartment will be restrained by black heavy nylon webbing. The webbing will be fastened permanently at the bottom, and footman loops and Velcro® straps at the top. The restraint will aid in securing the bottles during transfer.</p> |
| 0004218 | | Ladder, 35' Duo-Safety 1200A 2-Sect | <p>EXTENSION LADDER There will be two (2) 35' two (2) section aluminum Duo-Safety Series 1200-A extension ladder(s) provided.</p> |
| 0010406 | | Ladder, 28' Duo-Safety 1200A 2-Section | <p>AERIAL EXTENSION LADDERS There will be two (2) 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>ROOF LADDER 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> |
| 0542436 | | Ladder, 16' Duo-Safety 875-DR Roof | <p>ADDED ROOF LADDER There will be one (1) 16' roof, aluminum, Series 875-A-DR provided.</p> |
| 0024233 | | Not Required, Attic Extension Ladder | |
| 0004246 | | Ladder, 10' Duo-Safety Folding, 585A | <p>AERIAL FOLDING LADDER There will be two (2) 10' aluminum Duo-Safety Series 585-A folding ladder(s) provided and located in the aerial torque box.</p> |
| 0680193 | | Ladder Storage, Vertically Hinged Doors, Smooth Alum, Grabber Door Brkt, Tiller | <p>GROUND LADDER STORAGE The ground ladders will be removable from the center rear of the apparatus. The ladders will be individually stored in stainless steel slides and will be arranged in such a manner that any one (1) ladder can be removed without having to move or remove any other ladder. Black Dura-Surf friction reducing material will be added to the stainless steel slides, on the bottom horizontal surfaces, of the ladder storage rack. Vertically hinged double lap doors will be provided at the rear to close the ladder compartment. Doors will be of double pan aluminum construction. Single sheet aluminum doors will not be considered. The lock door will be latched with Eberhard latches with "D" ring handles. There will be a Cast Products grabber door stay bracket provided on the outside of each door to hold it in the open position.</p> |

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| 0602102 | Lights, Torque Box Ladder Storage, Truck-Lite 44042C 2lts, LED, Round 4" | LADDER STORAGE LIGHTING There will be two (2) Truck Lite Model 44042C, 4.00" white LED lights with Model 40290, grommets used to illuminate the torque box ladder storage compartment. One (1) each side will be located on the side wall of the torque box near the ladder storage entry area. The lights will be activated when the ladder storage compartment door is opened. |
| 0653608 | Ladder, Little Giant, Revolution XE - Model 17, 12017 | ADDITIONAL FOLDING LADDER One (1) Revolution XE Model 12017 Little Giant folding ladder will be provided. The stored dimensions will be 55.50" high x 23.75" wide x 9.25" deep. The weight will be 31.50lb. The ladder will be located rear equipment rack. |
| 0670839 | SP Anti-Migration Plate, Ladder, Ladder Storage | LADDER PLATE A stainless plate with a two bend flange and a stainless steel hinge will be provided to secure the ladder complement. The plate assembly will be mounted to the bottom of the entrance of the ladder storage area. When the plate is vertical, it will secure the ladders and prevent them from migrating to the rear of the apparatus. |
| 0658169 | Ladders, Nested, Left Side Ground Ladder Storage | NESTED LADDER STORAGE 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. |
| 0658170 | Ladders, Nested, Right Side Ground Ladder Storage | NESTED LADDER STORAGE There will be nested ladders on the right side of the ladder storage compartment. |
| 0785722 | SP Enclosure, S/S, Misc. Storage, In Torque Box, 9.25" Wide x 10' Long, 2" Webbing | ENCLOSURE IN TORQUE BOX A stainless steel enclosure will be provided in the open dead spaces of the rear ladder storage compartments in the torque box for additional storage . The enclosure will be approximately 9.25" wide x 7.65" high x 120" long. A 2.00" black nylon webbing restraint will be provided across the rear of this enclosure. The webbing will fasten with seat belt buckles. |
| 0785724 | SP Enclosure, S/S, Misc. Storage, In Torque Box, 4" Wide x 10' Long, Cargo Netting | ENCLOSURE IN TORQUE BOX A stainless steel enclosure will be provided in the open dead space inside of the rear ladder storage area in the torque box for additional storage . The enclosure will be approximately 4.00" wide x 16.50" high x 120" long. A 2.00" black nylon webbing restraint will be provided across the rear of this enclosure. The webbing will fasten with seat belt buckles. |
| 0724703 | Stokes Basket Storage, Trough, In Torque Box/Ladder Compartment, Aerial | STOKES STORAGE IN THE TORQUE BOX Storage provisions will be provided for a stokes basket in the torque box ladder storage area. The stokes basket to be stored will be 84.00" long x 25.00" wide x 9.00" high. |
| 0790949 | Pike Pole, 16' DUO Safety, Fiberglass | PIKE POLE, 16' One (1) pike pole 16' long DUO Safety with a fiberglass handle, will be provided and located in the torque box. |
| 0775907 | Pike Pole, 12' DUO Safety, Fiberglass | PIKE POLES There will be one (1) 12' Duo Safety pike pole(s) with fiberglass handles provided. The pike pole (s) will be stored in tubular holders located in the ground ladder storage compartment. |
| 0789564 | Pike Pole, 8' DUO Safety, Fiberglass, Aerial | 8' PIKE POLE There will be one (1) 8' Duo Safety pike pole(s) with fiberglass handle provided. The pike pole(s) will be stored in tubular holders located in the ground ladder storage compartment. |
| 0549137 | Not Required, Pike Pole, 6' | |
| 0548410 | Not Required, Pole, Pike, 3' | |
| 0770577 | Pike Pole Tubes, in Torque Box/Ladder Storage, Aluminum | PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE There will be aluminum tubing provided in the torque box/ladder storage area for a total of five (5) pike poles. If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided. |

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| 0532882 | Label, "NO STEP" | <p>WARNING LABEL(S) There will be one (1) label(s), indicating "NO STEP" provided top of generator.</p> |
| 0798010 | SP Pump House, 47.50", Tiller, 96" Wide Full Width Both Sides | <p>PUMP COMPARTMENT 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. 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. On both sides, the pump compartment will extend outward to the outside edge of the body. The area where the outlets and inlets are located will be recessed. The area above the pump inlets and outlets will be full width to support the water tank.</p> <p>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.</p> <p>PUMP CONTROL PANELS (Side Control) All pump controls and gauges will be located at the left (driver's) side of the apparatus and properly marked. The pump panel on the right (passenger's) side will be removable with lift and turn type fasteners. The left (driver's) side will be fastened with screws. The gauge and control panels will be two (2) separate panels for ease of maintenance. The side gauge panel will be hinged at the bottom with a full length stainless steel hinge. The fasteners used to hold the panel in the upright position will be quarter-turn type. Vinyl covered cable or chains will be used to hold the gauge panel in the dropped position. Polished stainless steel trim collars will be installed around all inlets and outlets. 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. 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 in individual chrome plated castings with the identification tag recessed in the casting below the gauge. All remaining identification tags will be mounted on the pump panel in chrome plated bezels. Mounting of the castings and identification bezels will be done with a threaded peg cast on the back side of the bezel or screws.</p> |
| 0723555 | Tiller Pump House Finish | <p>TILLER PUMP HOUSE AREA FINISH The tiller pump house area components will be finished as follows: The floor of the area under the pump panel will be aluminum treadplate. The remaining interior surfaces, sides and top will be painted lower cab color . The pump, plumbing, interior and exterior surfaces of the pump house will be painted to match lower cab . The water tank/cargo side sheets and area above the pump house will be smooth aluminum and painted to match the lower cab color with a treadplate top . The water tank top cover will be . The exterior of the crosslays will be match the lower cab color .</p> |
| 0035501 | Pump House Structure, Std Height | |
| 0797005 | Pump, Waterous, CXC20, 1500 GPM, Single Stage, Midship Split Shaft | <p>PUMP Fire pump shall be a Waterous CXC20, 1500 gpm, single (1) stage centrifugal type. The pump shall be an end suction, pedestal mount, single inlet type. Pump shall be the class "A" type. Pump shall deliver the percentage of rated discharge at pressures indicated below: - 100% of rated capacity at 150 psi net pump pressure. - 70% of rated capacity at 200 psi net pump pressure. - 50% of rated capacity at 250 psi net pump pressure. Pump body shall be close-grained gray iron, bronze fitted. Impeller shaft shall be stainless steel, accurately ground to size. It shall be supported by oil or grease lubricated, anti-friction ball bearings for rigid precise support. Bearings shall be protected from water and sediment by suitable stuffing boxes, slinger rings, and oil seals. No special or sleeve type bearings shall be used.</p> |
| 0004482 | Seal, Mechanical, Waterous | <p>Pump will be equipped with a self-adjusting, maintenance-free, mechanical shaft seal. The mechanical seal will consist of a flat, highly polished, spring fed carbon ring that rotates with the impeller shaft. The carbon ring will press against a highly polished stainless steel stationary ring that is sealed within the pump body. In addition, a throttling ring will be pressed into the steel chamber cover, providing a very small clearance around the rotating shaft in the event of a mechanical seal failure. The pump performance will not deteriorate, nor will the pump lose prime, while drafting if the seal fails during pump operation. 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> |

ATTACHMENT 2

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| 0559769 | Trans, Pump, Waterous C20 Series | PUMP TRANSMISSION 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 | PUMPING MODE 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 | AIR PUMP SHIFT 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 | TRANSMISSION LOCK-UP 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 | AUXILIARY COOLING SYSTEM 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 | |
| 0746508 | Valve(s), Relief Intake, Trident Air Max, Control Location | INTAKE RELIEF VALVE One (1) Trident Air Max intake relief valve(s) will be installed on the suction side of the pump preset at 125 psig. The relief valve will have a working range of 50 PSI to 350 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. One (1) adjustable air regulator and pressure indicating gauge will be located on a common bezel on the left side pump panel to control the intake valve(s). |
| 0692045 | Controller, Pressure, FRC, Pump Boss, PBA400 | PRESSURE CONTROLLER A Fire Research Pump Boss Model PBA400 pressure governor will be provided. A pressure transducer will be installed in the water discharge manifold on the pump. A pressure transducer will be installed in the inlet manifold on the pump. The display panel will be located at the pump operator's panel. |
| 0072153 | Primer, Trident, Air Prime, Air Operated | PRIMING PUMP 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. |
| 0780364 | Manuals, Pump, (2) Total, Electronic Copies | PUMP MANUALS 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. |

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| 0602504 | Plumbing, Stainless Steel and Hose, Single Stage Pump, Tiller | <p>PLUMBING, STAINLESS STEEL AND HOSE</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> |
| 0089437 | Plumbing Without Foam System | |
| 0004645 | Inlets, 6.00" - 1250 GPM or Larger Pump | <p>MAIN PUMP INLETS</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> |
| 0615562 | SP Valve, Waterous Monarch w/Relief, LS Side Inlet, 6", Waterous Electric Control | <p>INLET BUTTERFLY VALVE</p> <p>One (1) Waterous Monarch inline butterfly valve will be provided on the left side main pump inlet. The 6.00" inlet valve will be partially recessed behind the pump panel with a "key hole" shaped stainless steel trim ring around the opening.</p> <p>A built-in, adjustable pressure relief valve and a 3/4" bleeder valve will be provided on the inlet side of the valve. The bleeder valve controls will be located at the threaded connection and at the pump operator's panel.</p> <p>Valve will be electrically operated. An electric actuator, with seven (7) valve position LED indicator lights, will be provided at the pump operator's panel.</p> |
| 0893555 | SP Valve, Waterous Monarch w/Relief, RS Side Inlet, 6", Waterous Electric Control | <p>INLET BUTTERFLY VALVE</p> <p>One (1) Waterous Monarch inline butterfly valve will be provided on the right side main pump inlet.</p> <p>The 6.00" inlet valve will be partially recessed behind the pump panel with a "key hole" shaped stainless steel trim ring around the opening.</p> <p>A built-in, adjustable pressure relief valve and a 3/4" bleeder valve will be provided on the inlet side of the valve. The bleeder valve controls will be located at the threaded connection and at the pump operator's panel.</p> <p>Valve will be electrically operated. An electric actuator, with seven (7) valve position LED indicator lights, will be provided at the pump operator's panel.</p> |
| 0004646 | Cap, Main Pump Inlet, Long Handle, NST, VLH | <p>MAIN PUMP INLET CAP</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>VALVES</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 ten (10) year warranty.</p> |
| 0004685 | Valve, Inlet(s) - Outside Panel | Inlet valve location will be outside the pump panel. |
| 0004700 | Control, Inlet, at Valve | <p>INLET CONTROL</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> |
| 0004660 | Inlet (1), Left Side, 2.50" | <p>LEFT SIDE INLET</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> |
| 0723551 | Inlet (1), Right Side, 2.50" | <p>RIGHT SIDE INLET</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> |

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| 0004699 | Valve, .75 Bleeder,Aux. Side Inlet | <p>INLET BLEEDER VALVE A 0.75" ball type bleeder valve will be provided for each side gate inlet. The valves will be located behind the panel with a handwheel type knob for the control extended to the outside of the panel. The water, that is discharged by the valve, will be routed below the chassis frame rails.</p> |
| 0029043 | Tank to Pump, (1) 3.00" Valve, 3.00" Plumbing | <p>TANK TO PUMP 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>TANK REFILL 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> |
| 0062133 | Control, Outlets, Manual, Pierce HW if applicable | <p>DISCHARGE OUTLET CONTROLS 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. Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 16.7.5.3.</p> |
| 0004940 | Outlet, Left Side, 2.50" | <p>LEFT SIDE DISCHARGE OUTLETS 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> |
| 0005091 | Elbow, Left Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH | <p>LEFT SIDE OUTLET ELBOWS 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. The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p> |
| 0092570 | Not Required, Outlets, Left Side Additional | |
| 0035094 | Not Required, Elbow, Left Side Outlets, Additional | |
| 0004945 | Outlet, Right Side, 2.50" | <p>RIGHT SIDE DISCHARGE OUTLETS 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> |
| 0025091 | Elbow, Right Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH | <p>RIGHT SIDE OUTLET ELBOWS 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. The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p> |
| 0092571 | Not Required, Outlets, Right Side Additional | |
| 0089584 | Not Required, Elbow, Right Side Outlets, Additional | |
| 0005047 | Outlet, 4" w/4" Right, Handwheel | <p>LARGE DIAMETER DISCHARGE OUTLET 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> |
| 0005097 | Elbow, Large Dia Outlet, 30 Deg, 4.00" FNST x 5.00" Storz | <p>LARGE DIAMETER OUTLET ELBOWS The 4.00" outlet(s) will be furnished with one (1) 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap.</p> |

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| 0649939 | Outlet, Front, 1.50" w/2" Plumbing | <p>FRONT DISCHARGE OUTLET There will be one (1) 1.50" discharge outlet piped to the front of the apparatus and located on the top of the right side of the front bumper. 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 T swing handle drains provided at all low points of the piping.</p> |
| 0647702 | Additional Valve, Front Outlet, 2" | <p>FRONT OUTLET ADDITIONAL VALVE A second 2.00" full flow ball valve will be provided at the front bumper extension. The valve will have an integral chrome swing style handle.</p> |
| 0092573 | Not Required, Outlet, Hose Bed/Running Board Tray | |
| 0752097 | Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Chain | <p>DISCHARGE CAPS/ INLET PLUGS 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. Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size. The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p> |
| 0723042 | Valve, 0.75" Bleeder, Discharges, "T" Swing Handle | <p>OUTLET BLEEDER VALVE 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. The valves will be located behind the panel with a T 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 T 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> |
| 0723726 | Speedlay Module Not Required | |
| 0722432 | Hose Restraint Not Required, No Speedlay Module | |
| 0723395 | Speedlays, Not Required | |
| 0723394 | Speedlays, Not Required | |
| 0029167 | Crosslays Sngl Sheet Unpainted, (2+) 1.50", Std. Cap | <p>CROSSLAY HOSE BEDS 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. 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. The crosslay controls will be at the pump operator's panel. 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. Vertical scuffplates constructed of stainless steel will be provided at the front and rear ends of the bed on each side of vehicle. Crosslay bed flooring will consist of removable perforated brushed aluminum.</p> |
| 0029196 | Not Required, 2.50" Crosslay | |
| 0591145 | Hose Restraint, Crosslay/Deadlay, Top and Ends, Elastic Netting | <p>CROSSLAY/DEADLAY HOSE RESTRAINT Elastic netting will be provided across the top and ends of two (2) crosslay/deadlay opening(s) to secure the hose during travel. The netting will be permanently attached at the top center of the crosslay/deadlay bed and removable on each end.</p> |
| 0029260 | Not Required, Speedlays | |

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| 0750536 | Hose Restr, Spdly, Not Required, No Spdly | |
| 0044333 | Not Required, Foam System | FOAM SYSTEM A foam system will not be required on this apparatus. |
| 0552517 | Not Required, Refill, Foam Tank | |
| 0042573 | Not Required, Foam System Demonstration | |
| 0045465 | Not Required, Foam Tanks | |
| 0091110 | Not Required, Foam Tank Drain | |
| 0091079 | Not Required, Foam Tank #2 | |
| 0091112 | Not Required, Foam Tank #2 Drain | |
| 0738072 | Approval Dwg, Pump Panel(s), Not Required | |
| 0035570 | Pump Panel Configuration, No Match Required | PUMP PANEL CONFIGURATION The pump panel configuration will be neat and orderly. |
| 0562698 | Step, Slide-Out/Fold-Out, Pump Operator Platform, Aerial | PUMP OPERATOR'S PLATFORM 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. 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. The platform will be wired to the "step not stowed" indicator in the cab. |
| 0667186 | Light, Slide-Out Pump Operator Step, On Scene Solutions Access LED, Short Step | PUMP OPERATOR'S PLATFORM PERIMETER LIGHT 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. |
| 0629252 | Material, Pump Panels, Side Control Black Vinyl | PUMP AND GAUGE PANEL The pump and gauge panels will be constructed of aluminum with a black vinyl finish. A polished aluminum trim molding will be provided around each panel. |
| 0721765 | Panel, Pump Access - Right Side Only, Side Control | PUMP ACCESS Right Side Panel The right side upper pump panel will be removable. Panel Fastener The removable panels will be secured with chrome flush lift and turn latch . The left side pump panels will be attached with screws. The right side lower pump panel (drain bank) will be attached with screws. |
| 0583824 | Light, Pump Compt, Wln 3SC0CDCR LED White | PUMP COMPARTMENT LIGHT 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. There will be a switch accessible through a door on the pump panel included with this installation. |
| 0505599 | Gauges, Engine - Pump Panel, Included with FRC Pump Boss Control | PUMP PANEL GAUGES AND CONTROLS The following will be provided on the pump panels in the FRC IN Control Pressure Governor system - Engine Oil Pressure Gauge: LED bar graph display - Engine Water Temperature Gauge: LED bar graph display - Tachometer: over 1/2" high LED digits - Master Pump Drain Control - Voltmeter: LED bar graph display |

ATTACHMENT 2

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| 0005601 | Throttle, Engine, Incl'd w/Press Controller | |
| 0739224 | Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle,Green | THROTTLE READY GREEN INDICATOR LIGHT 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. |
| 0745568 | Indicator Light, Pump Panel, Ok To Pump, Green | OK TO PUMP INDICATOR LIGHT 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. |
| 0009227 | Gauges, 6.00" Master, Class 1, Special | VACUUM AND PRESSURE GAUGES The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©. The gauges will be a minimum of 6.00" in diameter and will have white faces with black markings, with a pressure range of 30.00" 0-400 psi. The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel. Test port connections will be provided at the pump operator's panel. One (1) 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 polished stainless steel plugs. They will be marked with a label. |
| 0511105 | Gauge, 3.00" Pressure, Class 1, Special | PRESSURE GAUGES The individual "line" pressure gauges for the discharges will be interlube filled and manufactured by Class 1©. The gauges will be a minimum of 3.00" in diameter and will have white faces with black markings. Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut. Gauges will have a pressure rating of 0-400 psi. 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. |
| 0062586 | Gauge, Water Level, Class 1, Pierce Std | WATER LEVEL GAUGE There will be an electronic water level gauge provided on the operator's panel that registers water 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 water level indicators will be as follows: 100 percent = Green 75 percent = Yellow 50 percent = Yellow 25 percent = Yellow Refill = Red 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 water tank is empty. 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 water and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level. |
| 0006774 | Not Required, Foam Level Gauge | |
| 0593161 | Light Shield, S/S LED | LIGHT SHIELD There will be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel. 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. |
| 0606695 | Air Horns, (2) Grover, Stutter Tone, 24" Long, in Bumper | AIR HORN SYSTEM Two (2) Grover, Stutter Tone air horns, 24.00" long, will be 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. |
| 0606832 | Location, Air Horns, Bumper, Left Side, Outside Frame, Same Side (Pos #6 & #7) | Air Horn Location The air horns will be located on the left side of the bumper, outside of the frame rail. |

ATTACHMENT 2

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| 0757092 | Control, Air Horn, Multi Select | AIR HORN CONTROL The air horn(s) will be activated by the following: |
| 0757084 | Control, Air Horn, Horn Ring | Steering wheel horn ring with electric/air horn selector switch |
| 0547475 | Siren, WIn 295HFSA7 200W, Dual Tone, Flush Mount | ELECTRONIC SIREN A Whelen, Model 295HFSA7 electronic siren and remote head with a pre wired unidirectional microphone will be installed. The model to be used will be determined by the chassis and location of the siren remote head. The siren will contain a remote siren head and a siren amplifier with a dual system build in to the amplifier. The siren features will include: Six (6) function siren plus radio repeat and public address Will meet California Title 13 and SAE J1849 specifications. Model 295HFSA7 will operate two (2) 100 watt speakers Operates is dual or mono modes. External dip switch selectable modes of operation. Outputs 2 independent siren tones creating a "rich harmonic dual tone sound". "Hands Free" operation. Turn On/Off and access all three siren tones (wail, yelp, and Piercer) without taking hands from the steering wheel. PTT (push to talk) switch on microphone overrides all siren functions. Pre Wired unidirectional microphone. Adjustable microphone volume. Adjustable preset radio repeat volume. Input polarity protection. Output short circuit protection. External mini spade-type fuse. Bi-polarity horn/ring control activation. Quick disconnect plug for ease of service or replacement. Five year HDP "Heavy Duty Professional" warranty on amp. This siren to be active when the battery switch is on and the emergency master switch is on. |
| 0510206 | Location, Elect Siren, Recessed Overhead In Console | Electronic siren head will be recessed in the passenger side inside 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 | SPEAKER 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. |
| 0601551 | Location, Speaker, Frt Bumper, Recessed, Right Side, Outside Frame,Outbrd(Pos 1) | The speaker will be recessed in the right side of the front bumper, towards the outside. |
| 0895310 | Siren, Federal Q2B | AUXILIARY MECHANICAL SIREN There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus. The Q2B will be chrome finish. 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 primary chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on. The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery. When the chassis battery switch is on, and the emergency master switch is on, the Q2B siren will be activated by the following: |
| 0578974 | Siren, Mechanical, Recessed In Grille, Imp/Vel | The mechanical siren will be mounted recessed in the front grille. The siren mounting will include a reinforcement plate. |
| 0748305 | Control, Mech Siren, Multi Select | MECHANICAL SIREN CONTROL The mechanical siren will be activated by the following: |
| 0748282 | Control Mech Siren, Ft Sw LS | Left side foot switch. |
| 0736691 | Sw, Siren Brake, Momentary Chrome Push Button, LS | A momentary chrome push button switch will be included in the left side dash panel to activate the siren brake. |

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| 0746353 | Not Required, Warning Lights Intensity | |
| 0604784 | Lightbar, WIn, Freedom IV-Q, 81", RRRRWRsrROptRsrRWRRRR | <p>FRONT ZONE UPPER WARNING LIGHTS</p> <p>There will be one (1) 81.00" Whelen® Freedom IV™ lightbar mounted on the cab roof. The lightbar will include the following:</p> <p>One (1) red flashing LED module in the driver's side end position. One (1) red flashing LED module in the driver's side front corner position. One (1) red flashing LED module in the driver's side first front position. One (1) red flashing LED module in the driver's side second front position. One (1) white flashing LED module in the driver's side third front position. One (1) red flashing LED module in the driver's side fourth front position. One (1) red steady burning LED module in the driver's side fifth front position. One (1) red flashing LED module in the driver's side sixth front position. One (1) 795 LED traffic light controller set to national standard high priority in the center positions.</p> <p>One (1) red flashing LED module in the passenger's side sixth front position. One (1) red steady burning LED module in the passenger's side fifth front position. One (1) red flashing LED module in the passenger's side fourth front position. One (1) white flashing LED module in the passenger's side third front position. One (1) red flashing LED module in the passenger's side second front position. One (1) red flashing LED module in the passenger's side first front position. One (1) red flashing LED module in the passenger's side front corner position. One (1) red flashing LED module in the passenger's side sixth front position.</p> <p>There will be clear lenses and colored filters included on the lightbar. The following switches may be installed in the cab on the switch panel to control the lightbar: a switch to control the flashing LED modules. the traffic light controller by a cab switch with emergency master control. no momentary switch to activate the traffic light controller. The white flashing LED modules and the traffic light controller will be disabled when the parking brake is applied. The eight (8) red flashing LED modules in the front positions may be load managed when the parking brake is applied.</p> |
| 0540439 | Light, Front Zone, WIn M6* LED, Colored Lens 2Lts | <p>WARNING LIGHTS (Cab Face)</p> <p>Two (2) Whelen model M6* LED flashing warning lights with chrome flange will be provided on the front of the cab above the headlights. The driver's side front warning light to be red. The passenger's side front warning light to be red. Both lights will include a lens that is the same color as the LED's. There will be a switch located in the cab, on the switch panel, to control the lights.</p> |
| 0653937 | Flasher, Headlight Alternating | <p>HEADLIGHT FLASHER</p> <p>The high beam headlights will flash alternately between the left and right side. 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. The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p> |
| 0086981 | No Tiller Trailer Accessories Req'd | |
| 0747228 | Lights, Side Zone Lower, WIn M6**, M6**, 6Lts | <p>SIDE ZONE LOWER LIGHTING</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> <p>Two (2) lights located, one (1) each side on the front custom cab corner. 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. Two (2) lights located, one (1) each side above the front wheels. 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. 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. The warning light lens colors to be the same as the LEDs. There will be a switch in the cab on the switch panel to control the lights.</p> |
| 0691142 | Lights, Door Interior Flash, 4 Dr Cab, WIn 3S*00F*R LED | <p>SIDE WARNING LIGHTS</p> <p>There will be four (4) Whelen, Model 3S*00F*R LED flashing lights provided. The lights will be located on each cab door, best possible location on each door. The color of the lights will be red. The color of the lenses shall be the same color as the LED's. The lights will be with a Whelen, Model 3FLANGEC surface mount chrome flange. Each light will be activated by the door jam switch of the associated door.</p> |

| Item ID | Description | Requirements |
|---------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0505919 | Lights, Side, WIn TIR3, LED, RS*03ZCR Horizontal, Clear Lens, Crm Flng 1st | <p>SIDE WARNING LIGHTS</p> <p>There will be four (4) pairs of Whelen, Model RS*03ZCR LED flashing lights provided, D4/D5 above and below centered between, D6 Centered above and below, P6/P7 above and below, P8 centered above and below.</p> <p>The color of the lights will be red.</p> <p>The lights will be provided with a Whelen, Model RFLANGEC, chrome plated ABS flange.</p> <p>The lights will be provided with a clear lens.</p> <p>These lights will be activated with the side warning switch.</p> <p>The lights may be load managed when the parking brake is applied.</p> |
| 0540777 | Lights, Rear Zn Lwr, WIn M6*, Colored Lens | <p>REAR ZONE LOWER LIGHTING</p> <p>Two (2) Whelen, Model M6* LED flashing warning lights with chrome bezels will be located at the rear of the apparatus.</p> <p>The driver's side rear light to be red.</p> <p>The passenger's side rear light to be red.</p> <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> |
| 0621947 | Light, Rear Zone Up, WIn Rota-Beam R316*F LED Beacon, Color Lens | <p>REAR OF HOSE BED WARNING LIGHTS</p> <p>There will be two (2) Whelen® Rota-Beam™, Model R316*F, 4.00" high x 7.19" wide beacons with the same color domes as the LEDs provided.</p> <p>The rear zone upper lights to be red in color.</p> <p>There will be a switch located in the cab on the switch panel to control the beacons.</p> |
| 0006551 | Not Required, Lights, Rear Upper Zone Blocking | |
| 0791528 | Light, Traffic Directing, WIn TAL65, 36.00" Long, TACTL5 | <p>TRAFFIC DIRECTING LIGHT</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> |
| 0529278 | Location, Traf Dir Lt, Surface Mount | This traffic directing light will be surface mounted 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>ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT</p> <p>The following guidelines will apply to the 120/240 VAC system installation:</p> <p>General</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>Grounding</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>Operation</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</p> |

operator's control station. The label will provide the operator with the following information:

Rated voltage(s) and type (ac or dc)

Phase

Rated frequency

Rated amperage

Continuous rated watts

Power source engine speed

Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.

Overcurrent protection

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).

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).

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.

Generator, Harrison 10kW MCR Hydraulic, Hot Shift PTO

ATTACHMENT 2

GENERATOR

The apparatus will be equipped with a complete electrical power system. The generator will be a Harrison Model MCR Stealth 10.0 kW Hydraulic unit. The wiring and generator installation will conform to the present National Electrical Codes Standards of the National Fire Protection Association. The installation will be designed for continuous operation without overheating and undue stress on components.

Generator Performance

- Continuous Duty Rating: 10,000 watts
- Nominal Volts: 120/240
- Amperage: 80 @ 120 volts, 40 @ 240 volts
- Phase: Single
- Cycles: 60 hertz
- Engine Speed at Engagement: Idle
- RPM range: 900 to 3,000 (hydraulic pump)

The output of the generator will be controlled by an internal hydraulic system. An electrical instrument gauge panel will be provided for the operator to monitor and control all electrical operations and output.

The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.

The generator will include an electrical control inside the cab. 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 next to the circuit breaker panel. The meter will indicate the following items:

- Voltage
- Amperage for both lines
- Frequency
- Generator run hours
- Over current indication
- Over temperature indication
- "Power On" indication
- Two (2) fuse holders with two (2) amp fuses (for indicator light protection)

The meter and indicators will be installed near eye level in the compartment. Instruments will be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used will be accurate within +/- two (2) percent.

Generator Wiring:

The system will be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components will be to the highest industry quality standards available on the domestic market. The equipment will be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage. The following electrical components will be the minimum acceptable quality standards for this apparatus:

Wiring:

All electrical wiring will be fine stranded copper type. The wire will be sized to the load and circuit breaker rating; ten (10) gauge on 30 amp circuits, 12 gauge on 20 amp circuits and 14 gauge on 15 amp circuits. The cable will be run in corner areas and extruded aluminum pathways built into the body for easy access.

Load Center:

The main load center will be a Cutler Hammer with circuit breakers rated to load demand.

Circuit Breakers:

Individual breakers will be provided for all on-line equipment to isolate a tripped breaker from affecting any other on-line equipment.

0505796

Location, Hydraulic Generator Above Gooseneck of Tiller

GENERATOR LOCATION

The generator will be mounted in the area above the goose neck of the tiller trailer. 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.

0657221

Remote Start, Hydraulic Generator, 3 Locations

GENERATOR REMOTE START

There will be a generator remote start/stop switch with indicator light in the following locations: within reach of the officer switch panel. on the command switch panel in D7. inside of the tiller cab.

0016740

Not Required, Fuel System

0016767

Not Required, Oil Drain Extension, Generator

0036738

Circuit Breaker Panel, Included With PTO Generator

CIRCUIT BREAKER PANEL

The circuit breaker panel will be located high on the left wall of compartment LS7.

ATTACHMENT 2

| | | |
|---------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0016771 | Not Required, Routing Exhaust, Generator | |
| 0599108 | Bracket, Alum. Trdplate, For 120/240volt Recessed Flood Lights, Compt Top, Each | BRACKETS, 120/240 VOLT LIGHT There will be four (4) aluminum treadplate bracket(s) installed for the driver and passenger side 110v scene lights for the recessed flood lights. The bracket(s) will have all wiring totally enclosed. |
| 0663549 | Light, Wln, 150W 120V, PCP2AC LED Fld/Spt, PBA203 Recessed 15 Deg 2nd | 120 VOLT LIGHTING There will be Two (2) 120 volt LED combination spot/flood light(s) installed in a semi-recessed chrome housing(s) located One light on the foreword most portion of P9 and one light to the rear of P6, catwalk area. The painted parts of this light assembly to be black. The light(s) selected above will be controlled by the AC circuit breaker as well as the following: a switch at the driver's side switch panel a switch at the passenger's side switch panel a switch at the command switch panel a switch in the tiller cab on the switch panel |
| 0664852 | Light, Wln, 150W 120V, PCP2AC LED Fld/Spt, PBA203 Recessed 15 Deg 1st | 120 VOLT LIGHTING There will be Two (2) Whelen, Model PCP2AC, 120 volt LED combination spot/flood light(s) installed in a Whelen, Model PBA203, semi-recessed chrome housing(s) located One light on the foreword most portion of D7 and one light to the rear of D4, catwalk area. The painted parts of this light assembly to be black. The light(s) selected above will be controlled by the AC circuit breaker as well as the following: a switch at the driver's side switch panel a switch at the passenger's side switch panel a switch at the pump operator's panel a switch in the tiller cab on the switch panel |
| 0006825 | Reel, Elect Cable, Hannay, 1600, (3) Wire | ELECTRIC CORD REEL Furnished with the 120 volt AC electrical system will be a Hannay, Series 1600, 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 72.00" above the operators standing position. The exterior finish of the reel(s) will be painted #269 gray from the reel manufacturer. 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. 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. A total of two (2) cord reels will be provided one (1) outboard on the driver's side gooseneck and one (1) outboard on the passenger's side gooseneck. The cord reel will be configured with three (3) conductors. |
| 0776477 | SP Cord, Electric, 8/3 Black, 150' length, 3 Wire, 20 Amp Bkr | CORD Provided for electric distribution will be two (2) 150' length of 8/3 electrical cord. The cord will be protected by a 20 amp 120 volt AC circuit breaker. A Hubbell L5-30, 30 amp, 120 volt, twist lock connector body. |
| 0788176 | Box, Junc, Akron, 4Wire, 2-15/20A 120V Dup SB, 2-20A 120V TL | PORTABLE JUNCTION BOX There will be two (2) Akron EJBX electric junction box(es) provided. There will be a cable strain relief and a 1.00' pigtail with wire mesh grip and apparatus manufacture installed NEMA L14-20, 20 amp, 120/240 volt twist lock plug provided for each box. Each box will be provided with the following: two (2) 20 amp 120 volt AC duplex straight blade receptacles with flip up covers two (2) 20 amp 120 volt AC twist lock receptacles with flip up covers a 120 volt AC light inside the box There will be a straight blade and twist lock receptacles powered by line 1 and the other straight blade and twist lock receptacles powered by line 2 with a common neutral. |
| 0013949 | Enclosure, Reel, with Reel Access Door | REEL ENCLOSURE An aluminum treadplate enclosure will be installed over the reel. The enclosure will be provided with a stainless steel hinge that will allow the cover to be opened. A captive roller assembly will be provided to assist with the payout of the cord. A ball stop will be provided on the cord to stop the cord at the roller assembly. A total of two (2) will be installed for each reel near the gooseneck. |
| 0006824 | Holder, Junction Box, Tread Plate Aluminum | JUNCTION BOX HOLDER There will be an aluminum junction box holder installed adjacent to the cord reel. A total of two (2) will be mounted at pick-up. |

0779722

Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 1st, Interior Body

120 VOLT RECEPTACLE

There will be six (6), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed tbd. The NEMA configuration for the receptacle (s) will be 5-20R.

The receptacle(s) will be powered from the onboard generator to shoreline power transfer switch.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

ATTACHMENT 2

0652605

Brand, Hydraulic Tool System, Hurst eDraulic

0649753

Not Required, PTO Driven Hydraulic Tool System

0649752

Not Required, Hydraulic Power Supply

0755072

Aerial, 107' ASL, 750/500 Tip, 50 MPH Wind, Tiller

FOUR (4)-SECTION 107 FOOT TRACTOR-DRAWN AERIAL LADDER CONSTRUCTION STANDARDS

The ladder will be constructed to meet all of the requirements as described in the current NFPA 1901 standards.

The aerial device will be a true ladder type device; therefore ladders attached to booms will not be considered.

These capabilities will be established in an unsupported configuration.

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.

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"

ATTACHMENT 2

- 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 intermittent 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.

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

750

Fly

-

-

-

-

-

250

500

750

Upper Mid

-

-

-

-

250

500

1000

1000

Lower Mid

-

-

-

-

500

750

1000

1000

Base

-

-

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-

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

-

-

-

-

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250

500

750

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Lower Mid

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Base

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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.

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.

| | | |
|---------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0762413 | Light, Boom Support, Amdor AY-LB-12HW012, 12" LED | AERIAL BOOM SUPPORT LIGHT There will be one (1) Amdor®, Model AY-LB-12HW012, 190 lumen, 12" long, white LED strip light mounted on the boom support cradle. This light will be activated when the aerial master switch is activated. |
| 0755127 | Tie Down, Rope, Per Pair, 9000lb Rating, Trailer Gooseneck, Tiller | ROPE TIE DOWN AT GOOSENECK There will be two (2) pairs of rope tie downs provided each side of the tiller gooseneck in the forward and rearward locations. Equal quantities will be provided on each side. The tie downs will be rated for a straight line pull of 9000 lb and will be nickel plated. |

| Item ID | Description | Title | ATTACHMENT 2 |
|---------|---------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0663833 | Boom Support, Raised, Tiller | SPECIAL HEIGHT BOOM SUPPORT | A special height boom support will be provided to raise the boom section to clear the compartment on top of the body. |
| 0680821 | Boom Panel, Pair | AERIAL BOOM PANEL | There will be one boom panel provided on each side of the aerial ladder base section. The boom panel will be painted Red 90. Customer requests that NO bolts show on the exterior of the panel per previous job #27235. 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' | EXTENSION INDICATOR | 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 | FOLDING STEPS | 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 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 have an integrated LED to illuminate the stepping surface. |
| 0688232 | Rung Covers, Aerial Device | AERIAL DEVICE RUNG COVERS | Each rung will be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating. The rung covers will be glued to each rung, and will be easily replaceable should the rung cover become damaged. The center portion of each rung cover will be black and the outside 2.00" edge at each side will be black. 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. |
| 0674963 | Scabbard, Temporary Vent Saw Storage, No Depth Gauge, Aerial Ladder | TEMPORARY SCABBARD AT END OF AERIAL | There will be a total of two (2) vent saw scabbard(s) provided. The scabbard(s) will be mounted on the left side of the aerial egress. The scabbard(s) will be DA finished. |
| 0678539 | Brackets Only, Roof/Wall Ladder, Aerial Fly Section | LADDER STORAGE MOUNTING BRACKETS | There will be brackets that are painted to match the aerial device provided near the end of the fly section of the aerial for mounting a roof ladder. The mounting brackets will accommodate a 14' Duo-Safety 875-A, 16.00" wide roof/wall ladder as determined by the type of aerial device and the available space. |
| 0601972 | Lights, Turntable Walkway, P25, LED | LIGHTS FOR TURNTABLE WALKWAY | 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. |
| 0601949 | Light, Turntable Console, TecNiq T-10, LED Strip Light | TURNTABLE CONSOLE LIGHTING | 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. |
| 0619248 | SP Cover, Raised, Control Station | CONTROL STATION COVER | The cover provided at the turntable control station will be made taller than standard to allow the intercom controls, speaker, 120 volt tip light switch (if applicable), and/or waterway shutoff valve control (if applicable) to be installed under the console cover. |
| 0679974 | SP Turntable Handrails, Offset Rear - MDL Style for ASL Tiller | TURNTABLE HANDRAIL | The turntable handrail will be the offset rear style. This will provide approximately 24.00" clearance between the handrails at the turntable entrance. |

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| 0771409 | SP | Hoist Rings, S/S, Forward Area of Turntable, Ascendant | <p>HOIST RINGS There will be two (2) stainless steel hoist rings located on the turntable. One (1) to be mounted on each side of the vertical surface of the lift cylinder ear at the front of the turntable (aerial side). The rating of each hoist ring will be a maximum of 1000 lb in all directions. There will be a label indicating this rating provided next to the hoist rings.</p> |
| 0771410 | SP | Eyes,(2) Rear Of T/T,6.00" Off Cntr,Rope Tie Off,Use w/Rope Tie Bar/LyfePulley | <p>EYELETS FOR ROPE TIE OFF POINTS Two (2) eyelets will be mounted near the edge at the rear edge of the turntable to be used in as a rope tie off point. Eyelets will be provided that are approximately 6.00" off the center on each side. They will be spaced as not to interfere with handrail mounting. The rating on each of these eyelets will be no more than 750 lbs. An adjacent label to each eyelet will indicate this.</p> |
| 0790401 | | Control Stations, ASL Tiller, MUX, Color Display | <p>INFORMATION CENTER There will be an information center provided at the aerial turntable control station. 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>OPERATION 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>GENERAL SCREEN DESIGN 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. 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. 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. 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>PAGE SCREENS The Information center will include the following pages: The Aerial Main and Load Chart page will indicate the following information: - Rungs Aligned and Rungs Not Aligned will be indicated with text and respective green or red colored ladder symbols. - Ladder Elevation will be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder. - Water Flow (if applicable) will be indicated via a water nozzle symbol and text indicating flow / 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). - <i>At A Glance</i> 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. <i>At a glance</i> features will be utilized. - Aerial Hydraulic Oil Pressure will be indicated with a symbol and text. <i>At a glance</i> 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. - <i>At A Glance</i> 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</p> |

ATTACHMENT 2

- grade shown in text format. The symbol will tilt dependent on the vehicle grade.
- The slope of the vehicle will be indicated via a fixed apparatus. 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.

STABILIZER CONTROL STATION

- There will be an easily accessible control station located on the trailer gooseneck, one (1) each side of the apparatus. The following controls and indicator lights will be clearly identified and conveniently located for ease of operation and viewing at each control station.
 - Driver Side/Passenger Side In/Out control switches
 - Driver Side/Passenger Side Up/Down control switches
 - Driver Side/Passenger Side Fully Extended indicator lights
 - Driver Side/Passenger Side Firm On Ground indicator lights
 - Stabilizer Emergency Power control switch
 - Trailer Level Assist control toggle switch
 - Global Safety Interlock Override red guarded switch
 - Aerial system Emergency Stop switch
 - Aerial system Emergency Stop Activated indicator light

TURNTABLE CONTROL STATION

- There will be one (1) device control station located on the right 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 following items will also be provided at the turntable control station, clearly identified and 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

ATTACHMENT 2

The vehicle will come equipped with a stabilization system consisting of two (2) hydraulically operated out and down style stabilizers. 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 17' measured from the centerline of the jack footpads when the beams are fully extended. The beams will be 6.81" wide x 8.88" 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 57.25" stroke.

The vertical jack cylinders will be capable of 12.00" 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 end, 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 shall be of the split-pan design and shall be a maximum 12.50" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This pan shall serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges shall 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 24.00" square 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. There will be one (1) pad located on each side of the apparatus, behind the stabilizers.

STABILIZER CONTROLS

An electrically controlled hydraulic valve will power stabilizer movement. The valve can also be manually controlled in the event of electrical malfunction. Hydraulic power override controls will be incorporated into the valve. The manual override mechanism will be completely sealed within the valve assembly to prevent any possibility of corrosion.

The stabilizer controls will be located on the trailer gooseneck, one (1) each side of the apparatus, to provide the operator with a full view of each stabilizer being positioned. Each stabilizer control panel will include the following:

- Driver Side/Passenger Side In/Out control toggle switches
- Driver Side/Passenger Side Up/Down control toggle switches
- Driver Side/Passenger Side Fully Extended indicator lights
- Driver Side/Passenger Side Firm On Ground indicator lights
- Stabilizer Emergency Power control toggle switch
- Trailer Level Assist control toggle switch
- Global Safety Interlock Override red guarded toggle switch
- Aerial system Emergency Stop mushroom switch
- Aerial system Emergency Stop Activated indicator light

As a safety device, an electrically actuated diverter valve will be provided. The hydraulic power will be diverted to the aerial ladder controls automatically the instant all stabilizer jacks are firmly planted on the ground. Once the aerial ladder is raised from the bedded position, the stabilizer hydraulic power is cut off so the stabilizers will not accidentally be moved while the aerial is being operated.

To aid in leveling the unit, two bubble type angle indicators will be located near the stabilizer controls. One indicator will show the angle of the truck from the front to rear and the other will show the side to side angle of the truck. The indicators will be color coded green to show when the truck has been properly leveled allowing the aerial device to be operated at full capacity.

A stabilizer deployment audible warning alarm will be provided at each side of the body, activated by the stabilizer movement.

A "Stabilizers Not Stowed" indicator light will be provided in the cab within view of the driver. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the vehicle if it is moved. The stabilizer system will also be wired to the "Do Not Move Truck" indicator light. This light will flash whenever the apparatus parking brake is not engaged and the stabilizers are not fully stowed.

0728961

Stabilizer Pan Material

STABILIZER PAN MATERIAL

The aerial stabilizer pans will be polished stainless steel.

0530819

Not Required, Aerial Stabilizer Pins

STABILIZER PINS

The stabilizer jacks will not have holes for the stabilizer pins.

| | | |
|---------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0779621 | Doors, Stabilizer Control Box, Valve/Electrical Distribution Box, Tiller | <p style="text-align: right;">ATTACHMENT 2</p> <p>STABILIZER CONTROL BOX DOORS There will be aluminum treadplate doors hinged on the bottom with a flush lift and turn latch provided over each stabilizer control box.</p> <p>VALVE/POWER DISTRIBUTION BOX ACCESS DOOR There will be aluminum treadplate doors with a flush lift and turn latch provided over the valve and power distribution box doors. These doors will be bottom hinged.</p> |
| 0629913 | Lights, Stabilizer Pad Locator, Wln Micro MPB*, Rec Stb S Pn, Sw Ft | <p>STABILIZER GROUND ILLUMINATION LIGHT There will be two (2) Whelen Micro Pioneer, Model MPB*, 12 volt DC LED spot light(s) provided. The light(s) will be recessed in the stationary stabilizer pan. The light(s) will indicate where the stabilizer pad will be set down. The painted parts of this light assembly to be black. The light(s) will be recessed into the stabilizer side cover plate on the aerial platform body and trimmed with a polished stainless steel housing/garnish ring. The light(s) will be activated per the following selections: a switch at the driver's side switch panel no additional switch location when the aerial master switch is activated no additional switch location</p> |
| 0540495 | Pads, Stabilizer, Modified to Slide On | <p>STABILIZER PADS, MODIFIED 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> |

HYDRAULIC SYSTEM**ATTACHMENT 2**

All hose assemblies will be assembled and crimped by the hose manufacturer's certified technician. An assembly cell will be located on the premises where the technician can perform audits of the final aerial assembly for proper fitting torque and hose routing.

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.

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.

The hydraulic oil will be a premium Multi-Vis product having a leading edge additive package, provide oxidation stability, be extremely shear stable and maximum anti-wear properties. All oil delivered to the manufacturing site will have a minimum ISO cleanliness level of 18/15/13.

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.

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.

Each aerial will include an oil sample port, identified with a yellow dust cap and a label, for subsequent customer testing.

Ball valves will be provided in the hydraulic suction and return lines to permit component servicing without draining the oil reservoir.

The system hydraulic pressure will be displayed on a 2.5" liquid filled gauge, located on the control console.

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.

HYDRAULIC CYLINDERS

All cylinders used on the aerial device will be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.

Each cylinder will include integral safety holding cartridges.

Each cylinder will be designed to a minimum safety factor of 4:1 to failure.

All safety holding cartridges will be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.

HYDRAULIC PUMP

The hydraulic system will be supplied by a 4.6 cubic inch variable volume, load and pressure compensating piston pump. The pump will be rated at a minimum of 5,365 psi peak pressure and 2,600 rpm. 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.

EMERGENCY PUMP

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.

AERIAL CONTROL VALVE

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 manually controlled and be located in the control console with the handles protruding through the operating surface for operation. The activation handles will be spaced a minimum of 3.5" for ease of operation. The valve spools will be designed to bleed off downstream pressure, in the neutral position and allow proper seating of any cylinder holding cartridge.

OIL RESERVOIR

The oil reservoir will have a minimum capacity of 40 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 cap will have a 40 micron filter to provide protection from contamination. 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 combination sight glass and thermometer will be mounted to the reservoir in an easily viewable location.

HIGH PRESSURE FILTER

The pressure filter will be rated for 6,000 psi working pressure and generously sized for efficiency and capacity. A 90 psi bypass spring will be included to protect the element and hydraulic system during lower than normal system operating temperatures.

The 5Q filter element will be constructed of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The nominal rating will be 5 micron and have an efficiency rating of 99.3 % for 5 micron sized particles. The element will have a dirt holding capacity of not less than 35 grams.

RETURN FILTER

The return filter will be rated for 150 psi working pressure and generously sized for efficiency and capacity. A 25 psi bypass spring will be included to protect the element and hydraulic system during lower than normal system operating temperatures. The 10Q filter element will be constructed of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The nominal rating will be 10 microns and have an efficiency rating of 99.5% for 10 micron sized particles. The element will have a dirt holding capacity of not less than 84.7 grams.

0786880

Swivels, D-Series w/Encoder, ASL-Tandem/Tiller, MUX (32 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 32 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.

ATTACHMENT 2

0709718

Electrical System, ASL Tiller

ELECTRICAL SYSTEM

The aerial device will utilize a microprocessor-based control system. The system will consist of the following components:

Control System Modules

Each of the control system modules will be configured as follows:

Sealed to a NEMA 4X rating

Operating range from -40 degrees F to 156 degrees F (-40 degrees C to 70 degrees C)

Communicate using J1939 data link

Two (2) diagnostic LED lights

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

Up to 16 diagnostic LEDs on each module

Ground matrix identification system

The following control system modules will 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)

Current Control Module

Built-in fault sensing

Three (3) analog inputs

Eight (8) digital outputs

Pulse width modulating (PWM) capable

3A continuous per output

Closed Loop System

Circuit protection based on actual current draw (not affected by heat)

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

0750827

Lights, WIn MPB* Micro LED, Trk & Tip, 6lts ASL

SPOTLIGHTS

There will be six (6) Whelen® Micro Pioneer, Model MPB*, 12 volt DC LED bail mount lights furnished.

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 black.

Power to the "tracking lights" will be controlled by an on/off switch at the turntable control operator's position.

The lights at the tip will be controlled by platform/tip and turntable.

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| 0653677 | Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid, Fly | <p>LIGHTING ON AERIAL LADDER</p> <p>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:</p> <p>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.</p> <p>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.</p> <p>The lights may be load managed when the parking brake is applied.</p> |
| 0540725 | Lights, Stabilizer Warn (1) Set, Wln M6* LED, Rear Colored Lens | <p>STABILIZER WARNING LIGHTS</p> <p>There will be two (2) LED flashing warning lights with chrome flanges installed on the stabilizer cover panels, one (1) each side.</p> <p>The rear stabilizer pan lights will be red LED with a lens the same color as the LEDs.</p> <p>These warning lights will be activated by the same switch as the side warning lights.</p> |
| 0068703 | Lights, Grote Supernova LED, Stabilizer Beam, (1) Set | <p>STABILIZER BEAM WARNING LIGHTS</p> <p>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.</p> |
| 0601980 | Lights, Stabilizer Scene, (1) set, Truck-Lite 40227C, Incandescent | <p>STABILIZER SCENE LIGHTS</p> <p>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 two (2) lights will be installed. These lights will be activated by the aerial master switch.</p> |
| 0783034 | DC Power To Aerial Tip, 13.92 Amps @ 12 Volt DC, ASL | <p>DC POWER CABLE to TIP</p> <p>There will be a cable installed in the aerial device to provide 13.92 amps @ 12 volts DC to the tip of the aerial device.</p> |
| 0737181 | Intercom, 2-Way Fire Research ICA910 Hands Free | <p>2-WAY AERIAL COMMUNICATION SYSTEM</p> <p>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.</p> <p>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.</p> <p>Each intercom unit will be weatherproof.</p> |
| 0540895 | Not Required, Breathing Air to Tip, Aerial Ladder | |
| 0024742 | Not Required, Mask, Breathing Air To Tip | |
| 0066919 | Not Required, Raised Pedestal, Tiller | |
| 0604457 | Lifting Eye Assembly, Rope Rescue Attachment, ASL, LSL | <p>LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT</p> <p>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.</p> |
| 0635860 | SP Rope Guide Bar At Base Section, No Tie Off, 100'/105' HDL | <p>ROPE GUIDE BAR AT BASE SECTION, RESCUE LIFTING SYSTEM</p> <p>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 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, on the same side as the turntable control console.</p> |
| 0645472 | Rope Tie Bar At Base Section, for Lyfe Pulley, Painted Box, Ascendant, 105', Tiller | <p>ROPE TIE BAR AT BASE SECTION, RESCUE LIFTING SYSTEM</p> <p>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.</p> |

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| 0530828 | Turntable Access, Chains | AERIAL TURNTABLE CHAIN A chain will be installed at the aerial turntable. | ATTACHMENT 2 |
| 0790402 | Waterway, High Flow, ASL-Tiller | WATER SYSTEM A waterway system will be provided consisting of the following components and features: 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. 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. 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. 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. 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. The master stream will be capable of flow up to 30 degrees above horizontal. An adjustable pressure relief valve will be furnished to protect the aerial waterway from a pressure surge. Two (2) 1.50" drain valves will be located at the lowest points of the waterway system and will be routed to drain through the center of the 5th wheel. | |
| 0632855 | Monitor, Akron 3480 StreamMaster II Electric w/Extended Vertical Travel | AERIAL MONITOR 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. 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. There will be a courtesy light at the tip of the aerial to illuminate the controls. 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. | |
| 0010758 | Flow Meter, Waterway, PAL, 110' Ascendant, MUX | AERIAL WATERWAY FLOW METER Waterway flow, including total water flowed, will be monitored by the microprocessor. An LCD display will be located at the turntable control station. | |
| 0512000 | Inlet, Aerial Waterway, 4.00" Plumbing with 5.00" Inlet, Tiller | AERIAL WATERWAY INLET The aerial waterway will be plumbed from the fifth wheel area to the waterway swivel with 4.00" pipe. A 5.00" inlet will be located on each side of the apparatus complete with a chrome plated cap. The individual "line" pressure gauges for the inlets will be manufactured by Class 1. They will be a minimum of 3.50" in diameter and will have white faces with black lettering. Gauges will be compound type with a vacuum/pressure range of 30.00"-0-600#. The individual pressure gauge will be installed as close to the inlet as practical. | |
| 0673128 | Quick-Lock Waterway Locking System, 100' HDL, 105' HDL, ASL | WATERWAY LOCKING SYSTEM 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. The monitor location will be changeable by the use of a single handle, located at the side of the ladder. 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. There will be no pins to remove and reinstall. The monitor will be operational at all times, regardless of its position, without connecting or disconnecting electrical lines. | |
| 0013164 | Elbow, Aerial Inlet, 5" FNST x 5" Storz w/Cap | ADAPTER, STORZ INLET There will be two (2) Storz 5.00" FNST x 5.00" Storz 30 degree elbow(s) with blind cap provided on each side of the aerial waterway inlets. | |

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| 0047897 | Tools, Aerial | <p>TOOLS The following tools will be provided for retorquing of all specified tools as recommended by the manufacturer: Torque Wrench All Required Extensions, Sockets and Adapters 4-to-1 Multiplier</p> |
| 0559494 | Manuals and Training, 3 Consecutive Days, Ascendant Ladder, PAL | <p>MANUALS 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. INITIAL INSTRUCTION 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> |
| 0593168 | Cab, Tiller, Sliding Doors | <p>TILLER CAB A permanently mounted tiller cab will be located on top of the tiller trailer, to the rear of the aerial ladder. The maximum overall height of the tiller cab will not exceed 134.00". The tiller cab will be totally enclosed. The cab windshield will be automotive approved tinted safety glass and will provide a minimum of 1,513 square inches of clear viewing area. Each side window, directly rearward of the windshield, will be more than 536 square inches. The side windows, combined with the windshield, will provide a minimum of 2,585 square inches of unobstructed viewing area. In order to provide maximum visibility for the tillerman, there will be no corner posts at the forward corners of the windshield. Two (2) slide back doors, one each side of cab will be provided. Doors will be mounted on top and bottom slides which will be lockable in either open or closed position. A minimum door opening of 21.50" will be provided when entering and exiting the tiller cab. The tiller cab doors will be equipped with drop-down windows. The windows will be 18.00" wide x 31.00" high. The rear wall of the tiller cab will have a vertically-split sliding window. The window will be 33.50" wide x 27.75" high. The tiller cab floor will be constructed of aluminum treadplate. A two (2) speed electric windshield wiper with washer will be provided for the front windshield. The windshield washer reservoir will have a capacity of two (2) quarts and will be located forward of the tiller cab. An adjustable, telescopic steering column will be provided. The diagnostic plug for the trailer ABS system will be provided in the driver side tiller access stepwell, behind the fuel fill door. The following controls/alarms will be provided inside the tiller cab: Buzzer signaling system with push button in tiller cab steering wheel as well as a labeled push button in the tractor cab, within reach of the driver. Jackknife alarm The following will be provided on the steering column support pedestal: Two (2) heater/defroster outlets Heater/defroster control switch The following controls/gauges will be located in the upper control panel: Step light switch Tiller wheel position indicator gauge. (L-C-R) Two (2) 2.00" diameter amber turn signal Windshield wiper/washer control switch</p> |
| 0726217 | Sun Visor, Vinyl/Fabric, Tiller Cab | <p>A vinyl covered sun visor will be provided in the tiller cab above the windshield. There will be a polished stainless steel bracket provided to help secure the sun visor in the stowed position.</p> |
| 0636262 | Light, Dome, Weldon Dual LED 1lt | <p>TILLER CAB DOME LIGHT There will be one (1) P1006, dual LED dome light with grey bezel installed in the tiller cab. The color of the LED will be red and white. The white LED will be controlled by the door switches and the lens switch. The color LED will be controlled by the lens switch.</p> |
| 0725375 | Heater/Defroster, Tiller Cab, Tiller, Electric, Dual 12V, 3 Spd, Med Climate | <p>TILLER CAB HEATER/DEFROSTER There shall be two (2) DC Thermal, Model SA12-4000, combination heater/defroster provided in the tiller cab. The system shall be 12 volt and shall be powered through the tractor ignition circuit. Each heater shall have a max of 5,000BTU. Each heater/defroster shall have a 3-speed motor, a high/low heat switch, and thermostatic control located in the tiller cab within reach of the tillerman. There shall be a minimum of two (2) defrost outlets in the cab for maximum defrost performance. The system shall be 12 volt and shall be powered through the tractor ignition circuit. The heater/defrost system shall have an airflow of 220 cfm.</p> |

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| 0751020 | | Air Conditioner, Tiller Cab, 2019 | <p>TILLER CAB AIR CONDITIONING Air conditioning will be provided for the tiller cab. ATTACHMENT 2 The unit will be manufactured by Danhard Inc. The air conditioner will have cooling capacity of 13,500 BTU. The in tiller cab venting will route via louvers included on the B-pillar of the tiller cab. The unit will be 120 volt AC and will be run off of the onboard generator. The full load amperage draw will be 12.00 amps in the cooling mode. The evaporator will be located ahead of the tiller cab on the top deck of the tiller trailer. The air conditioning unit will not increase the overall height of the tiller cab.</p> |
| 0695671 | | Seat, Tiller, Pierce PS6, Premium, Air Ride Hi-Back | <p>TILLER CAB SEAT A seat will be provided in the tiller cab. 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. The seat will have a reclining back adjustable from 20 degrees back to 0 degrees forward. The seat back will be a high back style with manual lumbar adjustment lever, and will include minimum 7.50" deep side bolster pads for maximum support. 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 buckled. 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> |
| 0554699 | | Steps,Tiller Cab Access, Moved Rearward, Each Side | <p>TILLER CAB STEPS For access to the tiller cab, two (2) sets of steps will be furnished at the rear of the apparatus, one set each side. The steps will be moved rearward and be in alignment with the tiller cab door. The bottom three (3) access steps will be full width, approximately 21.00" wide, and located just behind the tiller axle. The top step will be full width, approximately 18.50" wide. The steps will be securely reinforced and constructed of aluminum treadplate. Handrails will be provided on each side of the step assemblies for maximum safety. The steps will be illuminated for nighttime operation.</p> |
| 0636285 | SP | Ind Warn, Cab Seatbelt Warn, Jackknife Warn WIn VTX609B, FB UT-09-515-S, Dual | <p>JACKKNIFE ALARM There will be two (2) Floyd Bell, Model UT-09-515-S, staccato tone audible alarms and two (2) Whelen, Model VTX609B, blue flashing LED lights activated when the jackknife position approaches the maximum allowable angle which is 60 degrees. There will also be two (2) Floyd Bell, Model UO-09-515-S, whoop tone audible alarms activated when the jackknife position approaches actual collision which is 80 degrees. One (1) of each alarm and light will be installed in the tractor cab within view of the tractor driver. One (1) of each alarm and light will be installed in the tiller cab within view of the tiller driver. At 80 degrees jackknife position both alarms will sound, the staccato alarm will not deactivate at 80 degrees jackknife position. TILLER WARNING INDICATOR A warning indicator in the tractor cab will be activated if the parking brake is released and the tiller driver is not seated and buckled in the tiller cab.</p> |
| 0012207 | | Mirror, 6" Round Convex, Tiller Cab (PR) | <p>CONVEX MIRRORS (tiller cab) A 6.00" diameter round convex mirror with adjustable arm will be installed on each side of tiller cab.</p> |
| 0634358 | SP | Steering Shaft, Raised for Raised Rear Body/Tiller Cab | <p>TILLER CAB STEERING The steering shaft provided for the tiller cab will be designed to accommodate a raised rear body. The rear body will be raised 6.00".</p> |
| 0785422 | SP | Footswitch, Engine Start in Tiller Cab, Master Override Switch In Tractor,PickUp | <p>ENGINE START IN TILLER CAB A foot switch will be provided in the tiller cab on the passenger side to allow the truck to be started. If the switch is not pressed the truck will not start. There will be a master override switch located in the cab which will allow the truck to be started in the unlikely event that the switch at the tiller cab would fail. The switch in the cab will be a covered momentary switch. The switches will be located at pick up.</p> |
| 0615412 | SP | Deflectors, Tiller Cab Air Vents, Angled Towards Windshield | <p>VENT DEFLECTORS There will be painted aluminum deflectors provided around the tiller cab air vents to help direct the air towards the windshield to help maintain clear visibility through the tiller cab windshield.</p> |
| 0732242 | SP | Tinted Glass, Medium Gray, 40%-50%, Tiller Cab Rear Wall Window | <p>WINDOW TINT The tiller cab rear wall sliding window will be tinted medium gray, a 40-50% tint range.</p> |
| 0763551 | SP | Tinted Glass, Medium Gray, 40-50%, Tiller Cab Door Windows | <p>WINDOW TINT The tiller cab side door sliding windows will be tinted medium gray, a 40-50% tint range.</p> |

ATTACHMENT 2

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| 0051052 | Window Defrost Fans (2) | WINDOW DEFROST FANS Two (2) window defrost fans will be mounted one each side of the tiller steering column . |
| 0601213 | SP Vent Louvers, (2) Aluminum, IPOS, Tiller Cab | VENT LOUVERS The tiller cab vent louvers will be aluminum. |
| 0626771 | Trailer, 3.00" Extended Gooseneck, Single Axle Only, Tiller | TILLER TRAILER The gooseneck area of the tiller trailer will be constructed of 100,000 psi minimum yield strength steel. The gooseneck area will have a section modulus of 289.00 cu. in. and a resistance to bending moment of 28,900,000 inch pounds. The gooseneck area will be 46.00" wide x 13.50" deep. The tiller trailer frame will be box type construction to effectively resist trailer twist. The side rails will have a 13.38" tall web over the front and mid sections of the trailer, with a continuous smooth taper to a 10.75" over the tiller axle. The frame rails will be constructed of 80,000 psi minimum yield strength heat treated .38" thick steel, with 3.50" wide flanges and covered by top and bottom plates to form a ridged box structure. Cover plates will be 50,000 psi minimum yield strength steel. The tiller trailer frame will have a section modulus of 257.70 cu. in., and a resisting bending moment (rbm) of 12,880,000 inch pounds over the critical regions of the frame assembly, with a section modulus of 18.96 cu. in. with an rbm of 2,085,803 inch pounds over the rear axle. The overall length of the tiller trailer will be 471.00". The gooseneck area of the trailer will be extended 3.00". |
| 0090681 | Walkway, Turntable to Body, Tiller | WALKWAY, TURNTABLE TO BODY A walkway will be provided from the aerial turntable to the tiller body. |
| 0052481 | Axle, Tiller Trailer, Oshkosh TAK-4, Non Drive, 22,800# | TILLER TRAILER NON DRIVE AXLE The tiller trailer axle will be of the independent suspension design with a ground rating of 22,800 lb. Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron. The center cross members and side plates will be constructed out of 80,000-psi yield strength steel. Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations. The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative chamber above rated load. Camber at load will be zero degrees for optimum tire life. The kingpin bearing will be of low friction design and be sealed for life. Toe links that are adjustable for alignment of the wheel to the center of the trailer will be provided. The wheel ends must have little to no bump steer when the chassis encounters a hole or obstacle. The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase. The turning angle will be 24 degrees or greater. TILLER TRAILER NON DRIVE AXLE WARRANTY The non drive axle system will have a three (3) year parts and labor warranty. |
| 0032125 | Steering, Sheppard M110 w/tilt, TAK-4, Tiller Trailer | TILLER TRAILER STEERING Dual Sheppard M110 steering gears, with integral heavy-duty power steering, will be provided. The steering wheel will be 18.00" in diameter, and capable of tilting and telescoping. |
| 0652502 | Brakes, Meritor, EX225, 17", Disc Plus, TAK-4, Tiller | BRAKES The tiller trailer brake calipers will be Meritor® DiscPlus™ EX225 air disc type. The brake rotors will be 17.00" ventilated. |
| 0052483 | Suspension, Tiller, 22,800# | SUSPENSION Independent suspension will be provided with a minimum ground rating of 22,800 lb. The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces, and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment. Each wheel will have torsion bar type spring. In addition, each wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension. The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms. The torsion bar type spring and anchor lock system will allow for simple lean adjustments without the use of shims. Adjustment for a lean will be accomplished within 15 minutes. Anchor adjustment design is such that it allows 4.00" of ride height adjustment per side. The independent suspension will have been put through a durability test that simulated a minimum of 140,000 miles of inner city driving. |

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| 0631152 | Tires, Michelin, XFE (wb), 425/65R22.50 LRL (tiller) | TIRES Tiller trailer tires will be Michelin 425/65R22.50 radials, load range L, XFE with base tread, rated for 22,800 lb maximum axle load and 65 mph maximum speed. |
| 0037030 | Wheels, Alum. Alcoa, 22.50" x 12.25" (385/425), Tiller | WHEELS, TILLER 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. |
| 0037050 | Oil Seals, Tiller Axle | OIL SEALS Oil seals with viewing window will be provided on the tiller axle. |
| 0007150 | Bag of Nuts and Bolts | LOOSE EQUIPMENT The following equipment will be furnished with the completed unit: One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit. |
| 0602507 | NFPA Required Loose Equipment, Aerial, NFPA 2016, Provided by Fire Department | NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT The following loose equipment as outlined in NFPA 1901, 2016 edition, section 8.9.3 will be provided by the fire department. Two (2) 3 ft - 4 ft plaster hooks with D handles mounted in brackets fastened to the apparatus. Two (2) crowbars. Two (2) claw tools. Two (2) 12 lb (5 kg) sledgehammers. 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. 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). One (1) first aid kit. Six (6) salvage covers, each a minimum size of 12 ft × 18 ft (3.6 m × 5.5 m). Four (4) combination spanner wrenches. Two (2) scoop shovels. One (1) pair of bolt cutters, 24" (0.6 m) minimum. Four (4) ladder belts meeting the requirements of NFPA 1983. One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983. One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983. Two (2) 150 ft (45 m) utility ropes having a breaking strength of at least 5000 lb (2300 kg). One (1) box of tools to include the following: one (1) hacksaw with three (3) blades one (1) keyhole saw one (1) 12" (.3 m) pipe wrench one (1) 24" (.6 m) pipe wrench one (1) ballpeen hammer one (1) pair of tin snips one (1) pair of pliers one (1) pair of lineman's pliers assorted types and sizes of screwdrivers assorted adjustable wrenches assorted combination wrenches 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. 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. Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities. One (1) automatic external defibrillator (AED). One (1) double female 2.50" adapter with National Hose Threads (if equipped with a fire pump). One (1) double male 2.50" adapter with National Hose Threads (if equipped with a fire pump). One (1) rubber mallet, for use on suction hose connections (if equipped with a fire pump). Two (2) hydrant wrenches (if equipped with a fire pump). 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 (if equipped with a fire pump). 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 (if equipped with a fire pump). 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 (if equipped with a fire pump). 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 (if equipped with a fire pump). |

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| 0602535 | Extinguisher, Dry Chemical, Aerial NFPA 2016, Provided by Fire Department | DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT NFPA 1901, 2016 edition, section 8.9.3 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. |
| 0602354 | Extinguisher, 2.5 Gal. Pressurized Water, Aerial, NFPA 2016, Provided by Fire Dept | WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT NFPA 1901, 2016 edition, section 8.9.3 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. |
| 0007482 | Not Required, Crowbars | |
| 0007484 | Not Required, Claw Tools | |
| 0602675 | Axes, (2) Flathead, Aerial NFPA 2016, Provided by Fire Department | FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT NFPA 1901, 2016 edition, Section 8.9.3 requires two (2) flathead axes mounted in brackets fastened to the apparatus. The axes are not on the apparatus as manufactured. The fire department will provide and mount the axes. |
| 0602673 | Axes, (3) Pickhead, Provided by Fire Department, Aerial NFPA 2016 | PICKHEAD AXES PROVIDED BY FIRE DEPARTMENT NFPA 1901, 2016 edition, Section 8.9.3 requires three (3) pickhead axes mounted in brackets fastened to the apparatus. The axes are not on the apparatus as manufactured. The fire department will provide and mount the axes. |
| 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 #479 charcoal metallic and the lower section painted #90 red. There will be a special two-tone cab paint break at the roof line 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.

0509327

Paint, Two Tone, Tiller Cab

PAINT

The cab will be two-tone, with the upper section painted gray #479 and the lower section of the cab painted red #90.

The paint break will be located at the roof, matching the tractor cab.

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| 0646897 | Paint Chassis Frame Assy, E-Coat, Standard | <p>PAINT CHASSIS FRAME ASSEMBLY</p> <p>The chassis frame assembly will be finished with primer and gloss paint to match the lower job color before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.</p> <p>Components treated with epoxy E-coat protection prior to paint: Two (2) C-channel frame rails</p> <p>Components that are included with the chassis frame assembly that will be painted not e-coated are: Cross members Axles Suspensions Steering gear Battery boxes Bumper extension weldment Frame extensions Body mounting angles Rear Body support substructure (front and rear) Pump house substructure Air tanks Steel fuel tank Castings</p> <p>Individual piece parts used in chassis and body assembly The E-coat process will meet the technical properties shown.</p> | ATTACHMENT 2 |
| 0693797 | No Paint Required, Aluminum Front Wheels | | |
| 0693792 | No Paint Required, Aluminum Rear Wheels | | |
| 0733739 | Paint, Axle Hubs | <p>AXLE HUB PAINT</p> <p>All axle hubs will be painted to match lower job color.</p> | |
| 0581434 | Transit Coating, Carwell, Corrosion Protection, Including Underside | <p>TRANSIT COATING</p> <p>All non-painted metal surfaces on the exterior of the vehicle will be sprayed with a corrosion protective coating provided by Carwell. The coating can be removed with soap and water. The coating is made of a linseed oil base and is biodegradable.</p> <p>The underside non-painted metal surfaces will also be coated with a corrosion protective coating.</p> | |
| 0697170 | Grille, Mesh, Painted Black, Cab Front | <p>PAINTED GRILLE</p> <p>The chassis cab grille mesh will be painted black.</p> | |
| 0007230 | Compartment, Painted, Spatter Gray | <p>COMPARTMENT INTERIOR PAINT</p> <p>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> | |

0790913

Aerial Ladder Paint, Incl Gooseneck, Stabilizers, Tiller

AERIAL DEVICE PAINT COLOR

ATTACHMENT 2

The aerial device paint procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - 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.
2. Zinc Rich Primer - Zinc rich primer will be applied to the torque box and stabilizers.
3. Primer/Surfacer Coats - A two (2) component epoxy 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.
4. Hand Sanding - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish.
5. Primer Coat - A two (2) component epoxy primer coat will be applied over the sanded primer.
6. Topcoat Paint - Urethane base coat will be applied to opacity for correct color matching.
7. Clear Coat - Two (2) coats of an automotive grade two (2) component urethane will be applied. Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.

All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor.

Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items.

The aerial device components will be painted as follows using the aforementioned seven (7) step finishing process:

Aerial device ladder sections and extension cylinders: charcoal metallic 479

Aerial turntable: charcoal metallic 479

Aerial control console: charcoal metallic 479

Aerial lift cylinders: charcoal metallic 479

Aerial rotation motor (if applicable): charcoal metallic 479

Aerial torque box, stabilizer housings, gooseneck, 5th wheel components below the rotation point, body support structure, tiller axle and suspension: red 90

Aerial stabilizers: red 90

Aerial egress: #90 red (will be contrasting color to the aerial device ladder sections)

Aerial boom support: red 90

0790459

SP

Reflective Band, 1" Vinyl-6" Refl-1" Vinyl, w/Borders, 0.75" Gaps (Boaz, AL)

REFLECTIVE STRIPES

Three (3) stripes will be provided across the front of the vehicle and along the sides of the body. The band will consist of a 1.00" charcoal metallic vinyl stripe at the top with a 1/4" black border top and bottom, then a 6.00" reflective black stripe, and a 1.00" charcoal metallic vinyl stripe at the bottom with a 1/4" black border top and bottom. There will be a 0.75" void between the stripes.

0077356

Reflective, Cab Face, Below the S/S Trim Band

REFLECTIVE STRIPE ON CAB FACE

The reflective band provided on the cab face will be located below the stainless steel trim band and above the front bumper.

0780579

SP

Stripe, Chevron, Rear, Vinyl, Non-NFPA 2016 Color, Painted Rear Wall, Tiller

CHEVRON STRIPING, REAR

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the rear wall and aluminum doors. The rear bumper will not be covered.

The colors will be Dark Charcoal Metallic vinyl and the other color shall be painted job color.

Each stripe shall be 6.00" in width.

0596383

Stripe, Reflective/Diamond Grade, 6" on Stabilizers

REFLECTIVE STRIPE ON STABILIZERS

There will be a 6.00" wide black reflective stripe provided on the forward and rear facing side of all aerial stabilizers.

0567374

Stripe, Black Outline each Chevron Stripe @ Rear (Not Warranted)

REFLECTIVE STRIPE OUTLINE

A black vinyl outline will be provided for each chevron stripe at the rear of the truck.

0668703

Stripe, Reflective, Cab and Crew Cab Doors Interior, Match Exterior of Apparatus

CAB DOOR REFLECTIVE STRIPE

Reflective striping will be provided across the interior of each cab door. The striping will match what has been provided on the exterior of the unit.

This stripe will meet the NFPA 1901 requirement.

0543998

Stripe, Reflective, Tillerman Doors Interior

REFLECTIVE STRIPE, TILLERMAN DOORS

A 6.00" x 16.00" black reflective stripe will be provided across the interior of each tillerman's entry 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.

0680371

Stripe, Gold Leaf, Two-Tone Paint Break with Shield, IPO Chrome Molding

CAB STRIPE

There will be a genuine gold leaf stripe provided on both sides of the cab in place of the chrome molding and on the cab face with shield.

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| 0680426 | Stripe, Gold Leaf, Box, Boom Sign with Scrolls, Aerial | BOOM SIGN STRIPING There will be genuine gold leaf stripes along all edges of the aerial boom sign. The stripes will have an outline and a scroll at each corner. |
| 0027372 | Lettering Specifications, (GOLD STAR Process) | LETTERING The lettering will be totally encapsulated between two (2) layers of clear vinyl. |
| 0686432 | Lettering, Gold Leaf, 3.00", Each | LETTERING There will be genuine gold leaf lettering, 3.00" high, with outline and shade provided. There will be 22 letters provided. |
| 0686190 | Lettering, Gold Leaf, 14.00", Each | LETTERING There will be genuine gold leaf lettering, 14.00" high, with outline provided. There will be six (6) letters provided. |
| 0686211 | Lettering, Gold Leaf, 9.00", Each | LETTERING There will be genuine gold leaf lettering, 8.00" high, with outline and shade provided. There will be 22 letters provided. |
| 0686221 | Lettering, Gold Leaf, 7.00", Each | LETTERING There will be genuine gold leaf lettering, 7.00" high, with outline and shade provided. There will be two (2) letters provided. |
| 0686229 | Lettering, Gold Leaf, 6.00", Each | LETTERING There will be genuine gold leaf lettering, 6.00" high, with outline and shade provided. There will be four (4) letters provided. |
| 0686256 | Lettering, Gold Leaf, 4.00", Each | LETTERING There will be genuine gold leaf lettering, 4.00" high, with outline and shade provided. There will be seven (7) letters provided. |
| 0655896 | Sign Kit, Painted, Holder and Insert, Each | SIGN KIT FOR LETTERING/NUMERALS four (4) painted stainless steel plate(s) and holder(s) will be provided for department lettering. They will be mounted to be determined at precon and 9.75"W X 11"H on the cab sides & front bumper. in size. |
| 0530793 | Emblem, American Flag, Flat (Not Moving), Pair, Mirror Images | EMBLEMS There will be one (1) pair of American flag emblems, 12.00" high, installed Located on the gooseneck section of the tiller.. The flag will be flat (not moving) and made out of vinyl material. The pair will be mirror images of each other. |
| 0029814 | Emblem, Maltese Cross, Gold Leaf, 18"-20", Pair | MALTESE CROSS INSTALLATION There will be one (1) pair of maltese crosses, comprised of genuine gold leaf material, provided and installed Located on cab doors.. |
| 0529225 | Manuals, Two (2) CD, Fire Apparatus Parts, Custom Chassis | FIRE APPARATUS PARTS CD MANUAL There will be two (2) custom parts manuals for the complete fire apparatus provided in CD format with the completed unit. The manuals will contain the following: Job number Part numbers with full descriptions Table of contents Parts section sorted in functional groups reflecting a major system, component, or assembly Parts section sorted in alphabetical order Instructions on how to locate parts 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. SERVICE PARTS INTERNET SITE 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. |

| Item Number | Description | Title | Details |
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| 0543577 | Manuals, (1) Chassis Service & (1) CD, Custom | CHASSIS SERVICE MANUALS | <p>ATTACHMENT 2</p> <p>One (1) chassis service manuals containing parts and service information for major components will be provided with the completed unit.</p> <p>One (1) compact disk (CD) will also be provided that will include all of the information from the above manual.</p> <p>The manuals will contain the following sections:</p> <ul style="list-style-type: none"> - Job number - Table of contents - Troubleshooting - Front Axle/Suspension - Brakes - Engine - Tires - Wheels - Cab - Electrical, DC - Air Systems - Plumbing - Appendix <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 | CHASSIS OPERATION CD MANUALS | There will be two (2) CD format chassis operation manuals provided. |
| 0030008 | Warranty, Basic, 1 Year, Apparatus, WA0008 | ONE (1) YEAR MATERIAL AND WORKMANSHIP | A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal. |
| 0611136 | Warranty, Chassis, 3 Year, Velocity/Impel, WA0284 | THREE (3) YEAR MATERIAL AND WORKMANSHIP | The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal. |
| 0696698 | Warranty, Engine, Cummins, 5 Year, WA0181 | ENGINE WARRANTY | A Cummins five (5) year limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal. |
| 0684953 | Warranty, Steering Gear, Sheppard M110, 3 Year WA0201 | STEERING GEAR WARRANTY | A Sheppard three (3) year limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package. |
| 0595767 | Warranty, Frame, 50 Year, Velocity/Impel, Dash CF, WA0038 | FIFTY (50) YEAR STRUCTURAL INTEGRITY | The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal. |
| 0595698 | Warranty, Axle, 3 Year, TAK-4, WA0050 | FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY | The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal. |
| 0733306 | Warranty, Single Axle, 5 Year, Meritor, General Service, WA0384 | SINGLE REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY | A Meritor™ Axle 5 year limited warranty will be provided. |
| 0652758 | Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232 | ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY | A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal. |
| 0019914 | Warranty, Structure, 10 Year, Custom Cab, WA0012 | TEN (10) YEAR STRUCTURAL INTEGRITY | The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal. |
| 0744240 | Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055 | TEN (10) YEAR PRO-RATED PAINT AND CORROSION | A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal. |
| 0524627 | Warranty, Electronics, 5 Year, MUX, WA0014 | FIVE (5) YEAR MATERIAL AND WORKMANSHIP | The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal. |
| 0695416 | Warranty, Pierce Camera System, WA0188 | CAMERA SYSTEM WARRANTY | A Pierce fifty four (54) monthwarranty will be provided for the camera system. |

ATTACHMENT 2

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| 0708760 | Warranty, Not Applicable, LED Strip Lights | COMPARTMENT LIGHT WARRANTY The compartment lights will not offer an extended warranty. |
| 0046369 | Warranty, 5-year EVS Transmission, Standard Custom, WA0187 | TRANSMISSION WARRANTY The transmission will have a five (5) year/unlimited mileage warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission. 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 | TRANSMISSION COOLER WARRANTY 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 | WATER TANK WARRANTY A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal. |
| 0596025 | Warranty, Structure, 10 Year, Body, WA0009 | TEN (10) YEAR STRUCTURAL INTEGRITY The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal. |
| 0693126 | Warranty, AMDOR, Roll-up Door, 10 Year/5 Year Painted, WA0185 | ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY An AMDOR roll-up door limited warranty will be provided. The roll-up door will be warranted against manufacturing defects for a period of ten (10) years . A five (5) year limited warranty will be provided on painted roll up doors. The limited warranty certificate, WA0185, is included with this proposal. |
| 0734463 | Warranty, Pump, Waterous, 7 Year Parts, WA0382 | PUMP WARRANTY The Waterous pump will be provided with a Seven (7) year material and workmanship limited warranty . A copy of the warranty certificate will be submitted with the bid package (no exception). |
| 0648675 | Warranty, 10 Year S/S Pumping, WA0035 | TEN (10) YEAR PUMP PLUMBING WARRANTY The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal. |
| 0641372 | Warranty, Foam System, Not Available | |
| 0006999 | Warranty, Structure, 20 Year, Aerial Device, WA0052 | TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY The Pierce device limited warranty certificate, WA0052, is included with this proposal. |
| 0687388 | Warranty, Swivels, 5 Year, Aerial Device, WA0197 | AERIAL SWIVEL WARRANTY An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be submitted with the bid package. |
| 0088889 | Not Required, Additional Aerial Warranty | |
| 0687327 | Warranty, Waterway, 10 Year, Aerial Device, WA0198 | AERIAL WATERWAY WARRANTY An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate will be submitted with the bid package. |
| 0595860 | Warranty, Paint, 4 Year, Aerial Device, Pro-Rated, WA0047 | FOUR (4) YEAR PRO-RATED PAINT AND CORROSION A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal. |
| 0725636 | Warranty, Harrison Generator, 2 Year | TWO (2) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY A Harrison Hydra-Gen generator two (2) year limited warranty will be provided . |

| Item ID | Description | Requirements |
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| 0595820 | Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057 | <p>TEN (10) YEAR PRO-RATED PAINT AND CORROSION A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.</p> |
| 0595421 | Warranty, Goldstar, 3 Year, Apparatus, WA0018 | <p>THREE (3) YEAR MATERIAL AND WORKMANSHIP The Pierce Goldstar gold leaf lamination limited warranty certificate, WA0018, is included with this proposal.</p> |
| 0683627 | Certification, Vehicle Stability, CD0156 | <p>VEHICLE STABILITY CERTIFICATION 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> |
| 0736236 | Certification, Engine Installation, Velocity, Cummins X15, 2021 | <p>ENGINE INSTALLATION CERTIFICATION 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 delivery.</p> |
| 0686786 | Certification, Power Steering, CD0098 | <p>POWER STEERING CERTIFICATION 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>CAB INTEGRITY CERTIFICATION 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: European Occupant Protection Standard ECE Regulation No.29. SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks. SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.</p> <p>Roof Crush 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>Additional Roof Crush 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>Side Impact 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>Frontal Impact 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>Additional Frontal Impact 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). 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>CAB DOOR DURABILITY CERTIFICATION 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>WINDSHIELD WIPER DURABILITY CERTIFICATION 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>ELECTRIC WINDOW DURABILITY CERTIFICATION 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>SEAT BELT ANCHOR STRENGTH 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>SEAT MOUNTING STRENGTH 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>PERFORMANCE CERTIFICATIONS</p> <p>Cab Air Conditioning 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>Cab Defroster 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>Cab Auxiliary Heater <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>AMP DRAW REPORT 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. The manufacturer of the apparatus will provide the following: Documentation of the electrical system performance tests. A written load analysis, which will include the following: The nameplate rating of the alternator. The alternator rating under the conditions specified per: Applicable NFPA 1901 or 1906 (Current Edition). The minimum continuous load of each component that is specified per: Applicable NFPA 1901 or 1906 (Current Edition). Additional loads that, when added to the minimum continuous load, determine the total connected load. Each individual intermittent load. 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 | |
| 0000029 | TILLER BODY | |
| 0000012 | PIERCE CHASSIS | |
| 0004713 | ENGINE, OTHER | |
| 0046396 | EVS 4000 Series TRANSMISSION | |
| 0020011 | WATEROUS PUMP | |
| 0020009 | POLY TANK | |
| 0028047 | NO FOAM SYSTEM | |

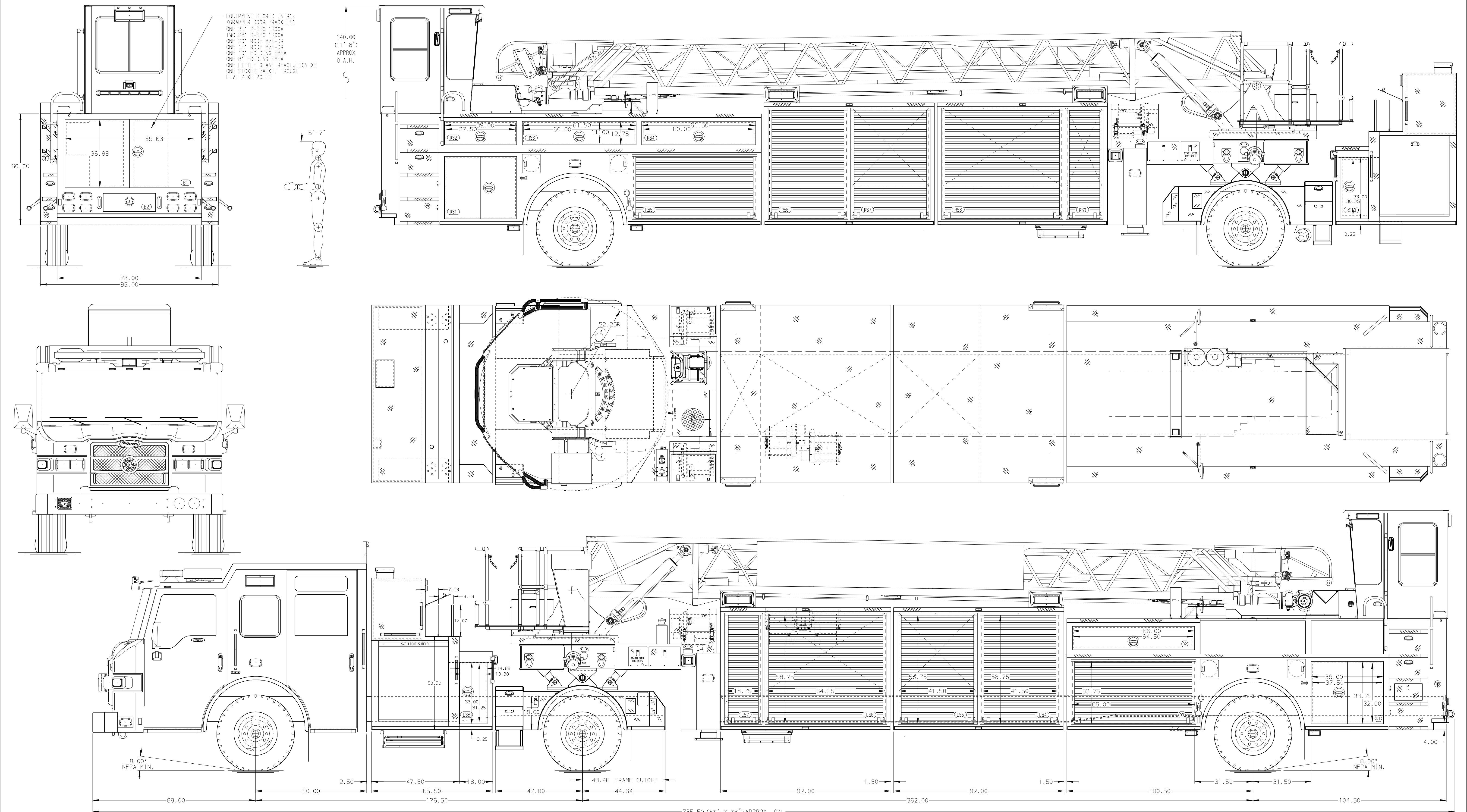
ATTACHMENT 2

0020006 SIDE CONTROL

0020007 AKRON VALVES

0020015 ABS SYSTEM

0658751 PUMPER BASE



ALUMINUM BODY MAXIMUM O.A.L. 732.00" (61'-0") MAXIMUM O.A.H. 140.00" (11'-8") SIDE ROLL AND FRONTAL IMPACT PROTECTION

NOTE
 DIMENSIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MINOR DEVIATIONS AS MAY OCCUR OR BE NECESSARY IN CONSTRUCTION. MINOR DETAILS NOT SHOWN.

THE GENERAL CONFIGURATION SHOWN IS INCORPORATING ALL OF THE MAJOR COMPONENTS PRESENT IN YOUR OPTION CONTENT HOWEVER SOME DETAIL ITEMS SHOWN MAY NOT REPRESENT THE EXACT OPTIONS SELECTED OR MAY NOT BE PRESENT ON THE DRAWING ENTIRELY.

| | | | |
|-----|------|----|----|
| REV | DATE | BY | CH |
| - | - | - | - |

| | | | |
|--------------|-------------------------------------------------------------------|-------------------|--------------------------|
| | | JOB NO. PRELIM | |
| | | SCALE 1:24 | DATE |
| TITLE | 107' ASCENDANT AERIAL TILLER AND BODY ASSEMBLY NO PUMP/NO TANK | | DRAWN BY CRI |
| FOR | MANTECA FIRE DEPARTMENT GOLDEN STATE FIRE APPARATUS, INC | | CHECKED BY - |
| CHASSIS DATA | MAKE PIERCE | MODEL VELOCITY FR | BID #893 MARK PAULSEN |
| DWG NO. | 04-9610 | | SHEET NO. 1 OF 1 |



Electrical Analysis

ATTACHMENT 2_{1/18/2022}

Bid #: 893
Desc: 107' Velocity Tiller Similar to 30972
Customer: Manteca Fire Department

Job #:
Sales Rep: Paulsen, Mark
Organization: Golden State Fire Apparatus, Inc

| Option | Description | Type* | Minimum Load | Intermittent Load | Total Connected |
|---------|-----------------------------------------------------------------------|-------|--------------|-------------------|-----------------|
| 0001244 | High Idle w/Electronic Engine, Custom | | 0.00 | 1.20 | 0.00 |
| 0002526 | Light, Engine Compt, All Custom Chassis | | 0.00 | 1.60 | 0.00 |
| 0006825 | Reel, Elect Cable, Hannay, 1600, (3) Wire | | 0.00 | 72.00 | 0.00 |
| 0010758 | Flow Meter, Waterway, PAL, 110' Ascendant, MUX | | 0.00 | 0.00 | 0.50 |
| 0020670 | ABS Wabco Brake System, Single Axle, Tiller | | 0.00 | 6.00 | 0.00 |
| 0032189 | Mirrors, Ramco, 6000PCHR, Heated/Remote, w/Heated/Remote | | 0.00 | 0.00 | 8.00 |
| 0032828 | No PTO switch req'd - w/aerial piggyback | | 0.00 | 0.00 | 0.08 |
| 0072153 | Primer, Trident, Air Prime, Air Operated | | 0.00 | 0.01 | 0.00 |
| 0098841 | Batteries, (6) Deka Grp 31, 1000 CCA each, Threaded Stud | | 0.00 | 3.00 | 0.00 |
| 0122466 | Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel | | 0.00 | 180.00 | 0.00 |
| 0505919 | Lights, Side, WIn TIR3, LED, RS*03ZCR Horizontal, Clear Lens, Crm | | 0.00 | 0.00 | 6.00 |
| 0551758 | Lights, Backup, WIn M6BUW, LED, Flange Feature | | 0.00 | 3.20 | 0.00 |
| 0555813 | Handlts, (4) Streamlight, Fire Vulcan, 44451, C4 LED, Tail Lts, 12v, | | 0.00 | 0.50 | 0.00 |
| 0583824 | Light, Pump Compt, WIn 3SC0CDCR LED White | | 0.00 | 0.36 | 0.00 |
| 0589905 | Alarm, Back-up Warning, PRECO 1040 | | 0.00 | 0.50 | 0.00 |
| 0615121 | Vehicle Information Center, 7" Color Display, MUX, Additional, | | 0.00 | 0.00 | 1.20 |
| 0629913 | Lights, Stabilizer Pad Locator, WIn Micro MPB*, Rec Stb S Pn, Sw Ft | | 0.00 | 8.00 | 0.00 |
| 0637961 | Controls, Electric Windows, All Cab Doors, DS Instr Pnl Swtch, | | 0.00 | 26.00 | 0.00 |
| 0653350 | Guards, Vehicle Camera(s), Painted Smooth Aluminum | | 0.00 | 0.00 | 0.00 |
| 0653526 | Camera, Pierce, Driver Mux, Rear Camera Only | | 0.00 | 1.20 | 0.00 |
| 0653677 | Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid, Fly | | 0.00 | 0.00 | 7.20 |
| 0653937 | Flasher, Headlight Alternating | | 0.00 | 0.00 | 0.08 |
| 0657221 | Remote Start, Hydraulic Generator, 3 Locations | | 0.00 | 1.00 | 0.00 |
| 0678715 | Compt, At Rear Between Tow Eyes, Smooth Alum Sngl Pan Door | | 0.00 | 0.00 | 1.80 |
| 0687994 | Engine Brake, Jacobs Compression Brake, Cummins Engine | | 0.00 | 0.42 | 0.00 |
| 0725375 | Heater/Defroster, Tiller Cab, Tiller, Electric, Dual 12V, 3 Spd, Med | | 0.00 | 75.00 | 0.00 |
| 0725783 | Lights, Centering, Cab Roof, Tlr, Clipsbl, Attwood NV2002SS-7, | | 0.00 | 0.00 | 1.44 |
| 0737181 | Intercom, 2-Way Fire Research ICA910 Hands Free | | 0.00 | 0.00 | 0.50 |
| 0738261 | Lights, Tractor Scene, WIn M9LZC LED, Back Of Water Tank | | 0.00 | 0.00 | 12.00 |
| 0744629 | Lights, WIn, PSL1** Pioneer, 12 VDC, 2nd | | 0.00 | 0.00 | 6.00 |
| 0744631 | Lights, WIn, PSL1** Pioneer, 12 VDC, 1st | | 0.00 | 0.00 | 6.00 |
| 0768059 | Lights, WIn, PCPSM2* Pioneer, 12 VDC, 2nd | | 0.00 | 0.00 | 12.00 |
| 0768061 | Lights, WIn, PCPSM2* Pioneer, 12 VDC, 1st | | 0.00 | 0.00 | 12.00 |
| 0776075 | Light, Visor, WIn, 12V P*H1* Pioneer LED | | 0.00 | 0.00 | 6.50 |
| 0780137 | Intercom, David Clark, 5-Pos, 2-Radio, (D,O,RPTT), 2obC, TC, 3805 | | 0.00 | 0.00 | 0.50 |
| 0785841 | Light, WIn, Pair, 12V PSL2B* SlimLine, Bail Brkt, Tiller Cab Side, SP | | 0.00 | 0.00 | 5.83 |
| 0797189 | Wiring, Spare, 4.8 A 12V DC, USB Termination Blue Sea 1045 1st | | 0.00 | 0.00 | 2.50 |
| 0894988 | Lights, WIn, PCPSM2* Pioneer, 12 VDC, 3rd | | 0.00 | 0.00 | 12.00 |
| 0895310 | Siren, Federal Q2B | | 0.00 | 100.00 | 0.00 |
| 0548004 | Wiring, Spare, 15 A 12V DC 1st | LM | 0.00 | 0.00 | 30.00 |
| 0585914 | Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 1st | LM | 0.00 | 0.00 | 40.00 |
| 0657222 | Wiring, Spare, 20 A 12V DC, 12 Circuit Fuse Block, Blue Sea 5026 1st | LM | 0.00 | 0.00 | 20.00 |
| 0741239 | HVAC, Impel/Velocity FR, CARE | LM | 0.00 | 0.00 | 136.00 |
| 0002615 | Switch, Aerial 12V Master | NFPA | 0.08 | 0.00 | 0.00 |
| 0002758 | Amp Draw, NFPA/ULC Radio Allowance | NFPA | 5.00 | 0.00 | 0.00 |
| 0059809 | Light, Marker, Weldon, 9186-1500 LED, Location | NFPA | 0.10 | 0.00 | 0.00 |
| 0062586 | Gauge, Water Level, Class 1, Pierce Std | NFPA | 1.23 | 0.00 | 0.00 |
| 0068703 | Lights, Grote Supernova LED, Stabilizer Beam, (1) Set | NFPA | 1.60 | 0.00 | 0.00 |
| 0092582 | Load Manager/Sequencer, MUX | NFPA | 0.56 | 0.56 | 0.00 |
| 0505599 | Gauges, Engine - Pump Panel, Included with FRC Pump Boss Control | NFPA | 0.30 | 0.00 | 0.00 |

* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply



Electrical Analysis

ATTACHMENT 2_{1/18/2022}

Bid #: 893
Desc: 107' Velocity Tiller Similar to 30972
Customer: Manteca Fire Department

Job #:
Sales Rep: Paulsen, Mark
Organization: Golden State Fire Apparatus, Inc

| Option | Description | Type* | Minimum Load | Intermittent Load | Total Connected |
|---------|-----------------------------------------------------------------------|-------|--------------|-------------------|-----------------|
| 0509649 | Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step | NFPA | 1.00 | 0.00 | 0.00 |
| 0516618 | Generator, Harrison 10kW MCR Hydraulic, Hot Shift PTO | NFPA | 35.31 | 0.00 | 0.00 |
| 0534987 | Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts, Aerial | NFPA | 0.35 | 0.00 | 0.00 |
| 0540439 | Light, Front Zone, WIn M6* LED, Colored Lens 2Lts | NFPA | 1.80 | 2.70 | 0.00 |
| 0540725 | Lights, Stabilizer Warn (1) Set, WIn M6* LED, Rear Colored Lens | NFPA | 1.80 | 2.70 | 0.00 |
| 0540777 | Lights, Rear Zn Lwr, WIn M6*, Colored Lens | NFPA | 1.80 | 2.70 | 0.00 |
| 0547475 | Siren, WIn 295HFS7 200W, Dual Tone, Flush Mount | NFPA | 1.40 | 12.60 | 0.00 |
| 0551870 | Lights, Tail, WIn M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir | NFPA | 0.83 | 2.49 | 0.00 |
| 0555915 | Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocit | NFPA | 2.10 | 8.40 | 0.00 |
| 0568012 | Air Dryer, Wabco System Saver 1200, Heater, 2010 | NFPA | 7.81 | 0.00 | 0.00 |
| 0568369 | Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocit 2010, | NFPA | 1.26 | 0.00 | 0.00 |
| 0593161 | Light Shield, S/S LED | NFPA | 3.00 | 0.00 | 0.00 |
| 0601949 | Light, Turntable Console, TecNiq T-10, LED Strip Light | NFPA | 0.20 | 0.00 | 0.00 |
| 0601972 | Lights, Turntable Walkway, P25, LED | NFPA | 0.35 | 0.00 | 0.00 |
| 0601980 | Lights, Stabilizer Scene, (1) set, Truck-Lite 40227C, Incandescent | NFPA | 2.88 | 0.00 | 0.00 |
| 0602102 | Lights, Torque Box Ladder Storage, Truck-Lite 44042C 2lts, LED, | NFPA | 1.00 | 0.00 | 0.00 |
| 0604784 | Lightbar, WIn, Freedom IV-Q, 81", RRRRWRsrROptRsrRWRRRR | NFPA | 8.96 | 2.68 | 9.92 |
| 0605126 | Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous | NFPA | 1.00 | 0.00 | 0.00 |
| 0606017 | Light, Do Not Move Apparatus, WIn VTX609R Red LED 2lts, DS PS | NFPA | 60.00 | 90.00 | 0.00 |
| 0615386 | Vehicle Information Center, 7" Color Display, Touchscreen, MUX | NFPA | 1.20 | 0.00 | 0.00 |
| 0620054 | Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts | NFPA | 0.10 | 0.90 | 0.00 |
| 0621947 | Light, Rear Zone Up, WIn Rota-Beam R316*F LED Beacon, Color | NFPA | 4.50 | 0.00 | 0.00 |
| 0636262 | Light, Dome, Weldon Dual LED 1lt | NFPA | 2.00 | 2.00 | 0.00 |
| 0642533 | Trans, Allison 5th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/DCF/Enf | NFPA | 2.00 | 2.00 | 0.00 |
| 0644535 | Lights, Step, P25 LED, Tiller, Prk Brk | NFPA | 0.50 | 0.00 | 0.00 |
| 0647244 | Cab, Velocity FR, 6010 Raised Roof | NFPA | 6.80 | 10.20 | 0.00 |
| 0647638 | Lights, Dome, Weldon Dual LED 4 Lts | NFPA | 0.80 | 0.80 | 0.00 |
| 0648074 | Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts | NFPA | 0.49 | 0.00 | 0.00 |
| 0648258 | Light, Directional, WIn M6T LED Arrow, 15 Degree Angle Bracket, | NFPA | 3.60 | 5.40 | 0.00 |
| 0648425 | Light, Directional, WIn 600 Cmb, Cab Crn, Imp/Vel/AXT/Qtm/DCF | NFPA | 0.70 | 0.70 | 0.00 |
| 0650184 | Lights, Dome, Weldon, Dual LED | NFPA | 0.40 | 0.40 | 0.80 |
| 0658406 | Light, Marker, Britax Rubber Arm, Model 427.200.LB, Amber/Amber, | NFPA | 2.00 | 0.00 | 0.00 |
| 0664481 | Bracket, License Plate & Light, P25 LED | NFPA | 0.07 | 0.00 | 0.00 |
| 0667186 | Light, Slide-Out Pump Operator Step, On Scene Solutions Access | NFPA | 0.65 | 0.00 | 0.00 |
| 0680193 | Ladder Storage, Vertically Hinged Doors, Smooth Alum, Grabber Door | NFPA | 0.90 | 0.00 | 0.90 |
| 0683224 | Compt, F/H, Trans Front, Roll, 6.00" Raised, RS Center, Tiller | NFPA | 1.80 | 0.00 | 1.80 |
| 0683225 | Compt, F/H, Trans Roll, Special Width, 6.00" Raised, 92.00" Wide,RS | NFPA | 1.80 | 0.00 | 1.80 |
| 0683228 | Compt, F/H, Trans Front, Roll, 6.00" Raised, LS Center, Tiller | NFPA | 1.80 | 0.00 | 1.80 |
| 0683231 | Compt, F/H, Trans Roll, Special Width, 6.00" Raised, 92.00" Wide, LS | NFPA | 1.80 | 0.00 | 1.80 |
| 0691142 | Lights, Door Interior Flash, 4 Dr Cab, WIn 3S*00F*R LED | NFPA | 1.20 | 0.00 | 0.00 |
| 0692045 | Controller, Pressure, FRC, Pump Boss, PBA400 | NFPA | 1.80 | 0.00 | 0.00 |
| 0709438 | Light, Walking Surf, FRP Flood, LED | NFPA | 2.00 | 0.00 | 0.00 |
| 0731813 | Hour Meter, Aerial, Included in Information Centers, ASL, AAT, ASP | NFPA | 0.10 | 0.00 | 0.00 |
| 0736395 | Engine, Cummins X15, 605 hp, 1850 lb-ft, W/OBD, EPA 2021, Velocity | NFPA | 6.00 | 0.00 | 0.00 |
| 0736670 | Headlights, Rect LED, HiViz FT-4X6-4KIT, AXT/DCF/Enf/Imp/Sab/Vel, | NFPA | 7.66 | 7.66 | 0.00 |
| 0739224 | Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure | NFPA | 0.10 | 0.00 | 0.00 |
| 0745568 | Indicator Light, Pump Panel, Ok To Pump, Green | NFPA | 0.10 | 0.00 | 0.00 |
| 0747228 | Lights, Side Zone Lower, WIn M6**, M6**, M6**, 6Lts | NFPA | 5.40 | 8.10 | 0.00 |
| 0750827 | Lights, WIn MPB* Micro LED, Trk & Tip, 6lts ASL | NFPA | 21.06 | 0.00 | 0.00 |
| 0755072 | Aerial, 107' ASL, 750/500 Tip, 50 MPH Wind, Tiller | NFPA | 5.00 | 0.00 | 0.00 |
| 0762413 | Light, Boom Support, Amdor AY-LB-12HW012, 12" LED | NFPA | 0.18 | 0.00 | 0.00 |

* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply



Electrical Analysis

ATTACHMENT 2_{1/18/2022}

Bid #: 893
Desc: 107' Velocity Tiller Similar to 30972
Customer: Manteca Fire Department

Job #:
Sales Rep: Paulsen, Mark
Organization: Golden State Fire Apparatus, Inc

| Option | Description | Type* | Minimum Load | Intermittent Load | Total Connected |
|---------------------|--------------------------------------------------------------------|-------|---------------|-------------------|-----------------|
| 0763173 | Lights, Perimeter Body, Amdor AY-LB-12HW012 LED 4lts, Turntbl/Rr | NFPA | 0.72 | 0.00 | 0.00 |
| 0763582 | DEF Tank, 4.5 Gallon, DS Fill, Forward of Rear Axle, Tiller | NFPA | 0.60 | 11.40 | 0.00 |
| 0765626 | Cabinet, Rear Facing, RS, 26.5 W x 38 H x 21.5 D, Ext Acc Only, | NFPA | 0.22 | 0.22 | 0.00 |
| 0765633 | Cabinet, Rear Facing, LS, 30.5 W x 38 H x 24 D, Ext Acc Only, | NFPA | 0.41 | 0.41 | 0.00 |
| 0769420 | Lights, Perimeter Cab, Amdor AY-LB-12HW020 LED 4Dr | NFPA | 1.20 | 0.00 | 0.00 |
| 0769564 | Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 1lt | NFPA | 0.30 | 0.00 | 0.00 |
| 0769570 | Lights, Perimeter, Amdor AY-LB-12HW020 20" LED, Brkt | NFPA | 2.40 | 0.00 | 0.00 |
| 0770200 | Handrail, Exterior, Hansen, Knurled, Alum, LED Backlit, 4-Door Cab | NFPA | 0.80 | 0.00 | 0.00 |
| 0784035 | Compt,Low F/D Frt Roll/Lift Past 90,Low Rr Lap,Spc Step,10" Rsd Fd | NFPA | 3.60 | 0.00 | 3.60 |
| 0784038 | Compt, Low F/D Frt Roll,3 Lifts,Low Rr Lap,Spc Step,10" Rsd | NFPA | 3.60 | 0.00 | 3.60 |
| 0790401 | Control Stations, ASL Tiller, MUX, Color Display | NFPA | 4.26 | 0.00 | 0.00 |
| 0791528 | Light, Traffic Directing, WIn TAL65, 36.00" Long, TACTL5 | NFPA | 0.60 | 1.20 | 0.00 |
| 0647728 | Alternator, 430 amp, Delco Remy 55SI | S | 0.00 | 0.00 | 0.00 |
| Load Totals: | | | 244.94 | 656.21 | 354.15 |

Note: Minimum Continuous Load is in "Blocking Right of Way" mode.(Reference current edition of NFPA 1901)
 Note: Intermittent Load items are not factored in on any alternator load comparisons. These items are included on the report for reference only and should be looked at as amp draw exclusion items. (Reference current edition of NFPA 1901)
 Note: Total Connected Load "Demand" represents Total Connected Load minus any Load Managed items

Alternator Output at Idle: 253.00

| Minimum Continuous Load | |
|-------------------------|--------|
| Supply: | 253.00 |
| Demand: | 244.94 |
| Variance: | 8.06 |

Alternator Output at Governed Speed: 369.00

| Total Connected Load | |
|----------------------|--------|
| Supply: | 369.00 |
| Demand: | 373.09 |
| Variance: | -4.09 |

* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply



**Certification Document CD0156
Statement of Compliance to NFPA 1901-2016
Vehicle Stability**

Pierce fire apparatus comply with NFPA 1901 Section 4.13 Vehicle Stability using the tilt table method. As prescribed by the standard, each apparatus is compared to a substantially similar apparatus that has been loaded as required and tested on a tilt table per the SAE J2180 test procedure. If the apparatus configuration was not expected to meet the minimum tilt table criteria, then it will be equipped with the Electronic Stability Control option. A listing of all tested apparatus is maintained by the Research and Development lab and is available for inspection at the Appleton factory.



4.13 Vehicle Stability.

4.13.1* Rollover Stability. The apparatus shall meet the criteria defined in 4.13.1.1, or it shall be equipped with a stability control system in accordance with 4.13.1.2.

4.13.1.1 The apparatus shall meet the criteria defined in either of the following:

(1)*The apparatus shall remain stable to 26.5 degrees in both directions when tested on a tilt table in accordance with SAE J2180, *A Tilt Table Procedure for Measuring the Static Rollover Threshold for Heavy Trucks*.

(2) The calculated or measured center of gravity (CG) shall be no higher than 80 percent of the rear axle track width.

4.13.1.1.1 Compliance shall be certified by testing, calculating, or measuring the apparatus or by comparing the apparatus to a compliant, substantially similar example apparatus, and the certification shall be delivered with the fire apparatus.

4.13.1.1.2 The example apparatus shall be considered substantially similar if it includes a chassis with the same or higher CG height, the same or narrower rear axle track width, the same or greater water tank size and CG height, the same type of front and rear suspension, and the same type and size of aerial device.

4.13.1.1.3 For purposes of 4.13.1.1, the apparatus shall be loaded with fuel, fire-fighting agents, hose, ladders, a weight of 250 lb in each seating position, and weight equivalent to the miscellaneous equipment allowance as defined in Table 12.1.2.

4.13.1.1.3.1 If the apparatus is designed to meet a specified higher equipment loading or larger hose bed capacity or to carry additional ground ladders, these greater loads shall be included in the testing, calculating, or measuring.

4.13.1.1.3.2 The weight added to the fire apparatus for the purpose of test, calculation, or measurement shall be distributed to approximate typical in-service use of the fire apparatus while not exceeding the manufacturer's published individual compartment weight ratings.

4.13.1.2 If the apparatus is equipped with a stability control system, the system shall have, at a minimum, a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer, and individual wheel brake controls.

VALIDATION TEST: Multiple Tests

Pierce Manufacturing, Inc.

David W. Archer
Vice President of Engineering
June 1, 2017

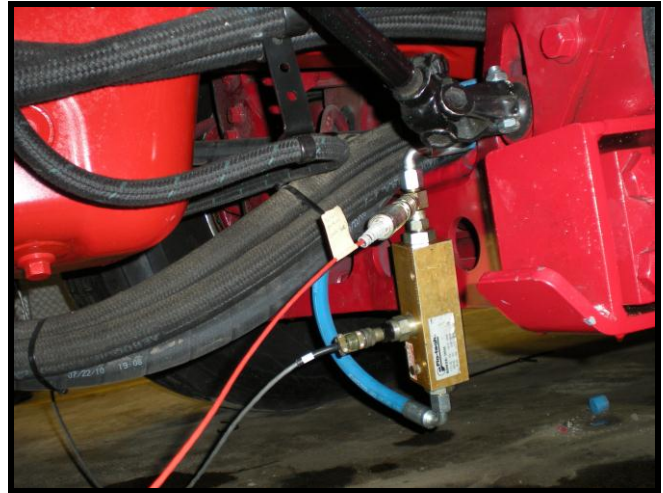
PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



**Certification Document CD0098
Power Steering System**

Pierce Manufacturing, Inc. certifies that the power steering system as installed in our custom chassis meets the requirements of the component supplier, the NFPA 1901 and NFPA 1906 guidelines as applicable, and Pierce internal design standards.



VALIDATION TEST: RD1987, RD2055
RD2056, RD2057, RD2058, RD2059

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David W. Archer".

David W. Archer
Director of Engineering
June 03, 2011

PIERCE MANUFACTURING INC.®

AN OSHKOSH TRUCK CORPORATION® COMPANY



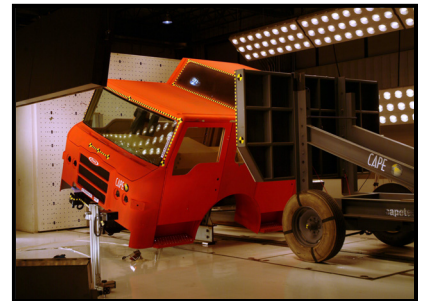
Certification Document CD0009 Velocity® & Impel® Cab Integrity Certification

Pierce Manufacturing certifies the integrity of the Velocity/Impel cab relative to occupant protection.

A specimen representing the substantial structural configuration of the Velocity and Impel cab models has been successfully tested in accordance with the following standards.

- SAE J2422 Cab Roof Strength Evaluation – Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No. 29.
- SAE J2420 COE Frontal Strength Evaluation – Dynamic Loading Heavy Trucks.

Side Impact: The test cab was subjected to dynamic preload where a 13,275 lb moving barrier was slammed into the side of the cab at 5.5 mph, striking with an impact of 13,000 ft-lbs of energy. This test is not required to meet the ECE 29 standard, but is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a roll-over incident.



Roof Crush: This same test cab was then subjected to a roof crush force of 22,050 lbs. This value meets the ECE 29 criteria, which must be equivalent to the front axle rating up to a maximum of 10 metric tons.



Additional Roof Crush: The same cab was then loaded with 58,000 lbs, 85,000 lbs, and finally 100,000 lbs on the roof, exceeding the ECE test by 4.5 times!



Frontal Impact: The test cab was struck by the 13,275 lb moving barrier at a speed sufficient to impart the required 32,600 ft-lbs of energy.

The cab survived this second blow without compromising the survival space of any occupant area.

Additional Frontal Impact: The same cab was then struck a third time at a higher speed to impart 65,200 ft-lbs of energy into the cab (twice the ECE 29 level of energy).

The cab survived this third blow, again without compromising the survival space of any occupant area.

Side Crush: As an additional test of the Velocity/Impel strength, the same test cab was set on its side and loaded to 100,000 lbs. The cab in this test withstood the load without any appreciable damage or occupant space intrusion.



Pass-Fail criteria of the SAE tests and the ECE 29 test is a measure of whether the “survival space” inside the cab is compromised during any of the test loads. The Pierce cab withstood all integrity tests on the same cab without any measurable intrusion into the survival space of the occupant area.

Witnessed and Certified by:

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "James R. Lackore".



James Roger Lackore, PE
January 24, 2008

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



Certification Document CD0001 Velocity® & Impel® Cab Doors

Pierce Manufacturing certifies the integrity of the Velocity® & Impel® cab doors.

Specimens representing the substantial structural configuration of the Velocity and Impel cab front and crew doors have been successfully tested to meet the following objectives:

OBJECTIVES:

- Survive a 200,000-cycle door slam test with a slam acceleration up to 20 g's on one representative
- Validate the assembly concept of the main structure of the door by evaluating the durability of the bonding technique.
- Evaluate components, structure, and mounting of the door during and the end of the test for fatigue and failure to ensure durability.
- Verify that the door seals function properly at the end of the test.
- Evaluate the new extrusions and castings of the cab doorframe during and at the end of the test for fatigue, failure, and deformation of seal flanges.
- Evaluate various mounting options for the electronic control module for durability during portions of the slam test.

CONCLUSIONS:

- The door structure and doorframe successfully completed a 200,000-cycle door slam test with a door slam acceleration of 50 g's.

VALIDATION TEST: RD1239, RD1350

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "James R. Lackore".



James Roger Lackore, PE
March 16, 2008



PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



**Certification Document CD0005
Velocity® & Impel®
Windshield Wiper System**

Pierce Manufacturing certifies the integrity of the Velocity® & Impel® Windshield Wiper System.

Specimens representing the configuration of the Velocity® & Impel® windshield wipers have been successfully tested to meet the following objectives:

OBJECTIVES:

- Complete 3,000,000 cycles of windshield wiper operation per SAE J198 § 6.2
- Inspect wiper motor, pivots, linkages, and mounts frequently to validate cumulative wiper system integrity.

CONCLUSIONS:

- The wiper linkage, pivots, and mounts successfully completed 4,254,000 cycles.
- The low speed circuit on the wiper motor failed at 2,954,000 cycles but it continued to operate on high speed. The low speed failure was determined to be due to water intrusion. The production wiper motors are coated in “EL-Cast Resin with a 641 hardener additive” to seal them from water intrusion to prevent failure.

VALIDATION TEST: RD1240

Pierce Manufacturing, Inc.



James Roger Lackore, PE
March 16, 2008



PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



**Certification Document CD0004
Velocity® & Impel®
Window Regulators**

Pierce Manufacturing certifies the integrity of the Velocity® & Impel® window regulators.

Specimens representing the substantial structural configuration of the Velocity® & Impel® window regulators have been successfully tested to meet the following objectives:

OBJECTIVES:

- Electric window regulators withstand 30,000 up-down cycles.

CONCLUSIONS:

- The electric window regulators withstood 30,000 cycles without failure.

VALIDATION TEST: RD1350, RD1368

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "James R. Lackore".



James Roger Lackore, PE
March 16, 2008



PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



**Certification Document CD0018
Velocity® & Impel®
Seats and Seat Belts**

Pierce Manufacturing certifies the conformance of the Velocity® & Impel® cab seats and seat belts to Federal Motor Vehicle Safety Standards. Representative Velocity® & Impel® Seat and Seat Belt designs have been tested successfully in accordance with FMVSS 207.

Physical testing was performed to qualify passenger seats to meet Federal Motor Vehicle Safety Standards (FMVSS) 207 and 210. This requires that a minimum of 3,000 lbf be applied to both the lap and shoulder belts via appropriate body blocks. A third force of twenty times the mass of the seat must be applied at the center-of-gravity (CG) of the seat. All three forces are applied at the same time, reached within thirty seconds of the start of the test, and be held for a minimum of ten seconds.

A force equal to twenty times the mass of the seat was applied to each seat in the direction opposite to the combination pull. A moment of 275 lb-ft was applied to the seat with reference to the H-point.

This testing ensures that the seat mounting and seat belt anchors are adequate to retain the seats and occupants in a crash. The Federal requirements are based on the high deceleration rates of passenger vehicles, so the design requirements are significantly more conservative considering the slower crash speeds of heavy trucks.



SETUP 3
Velocity Test Cab – Hydraulic Cylinder Mounting

VALIDATION TESTS:

- RD1274
- RD1335
- RD1352
- RD1405
- RD1437
- RD1446

Pierce Manufacturing, Inc.

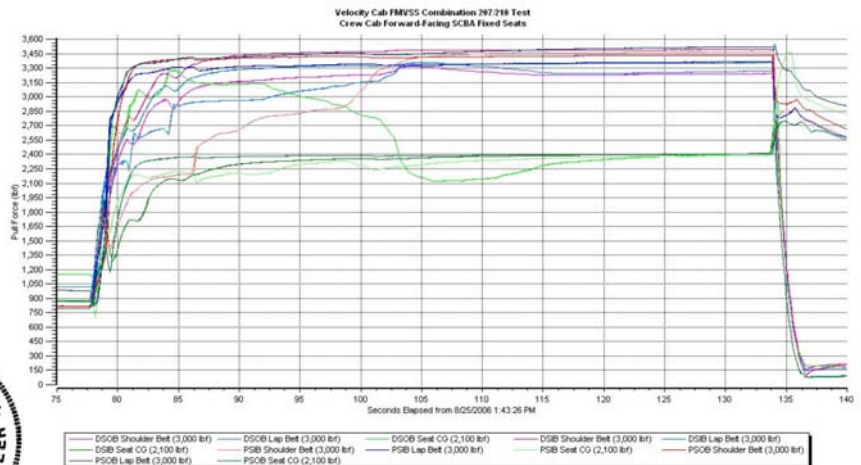


CHART G1
Velocity Test Cab – Crew Cab Forward-Facing Locations Test Results

James Roger Lackore, PE
June 17, 2008

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY

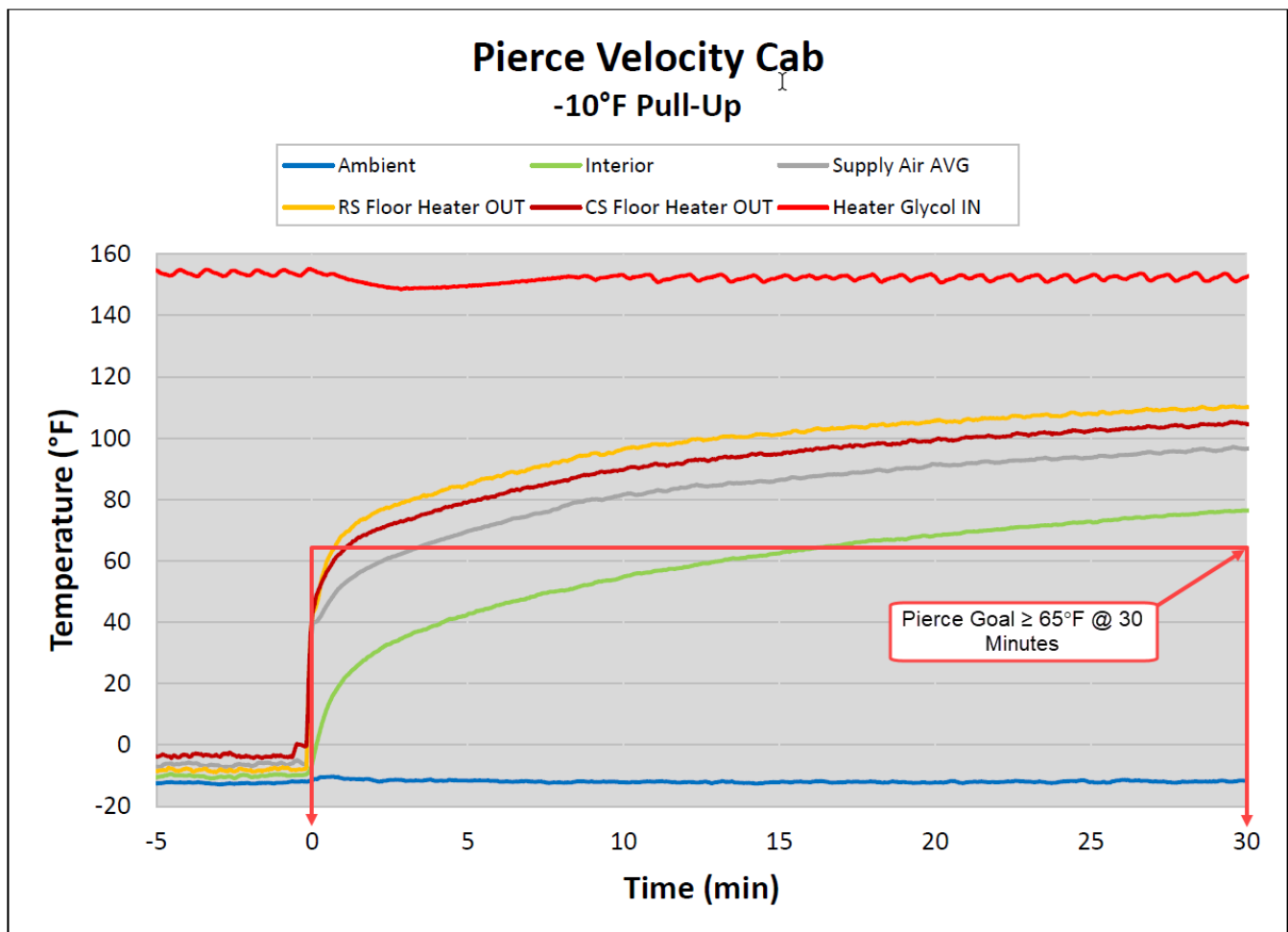


Certification Document CD0166 Velocity® & Impel® Cab Heater

Pierce Manufacturing certifies the performance of the Velocity® & Impel® cab heat system.

The Velocity® & Impel® Heater System was tested successfully in an environmental chamber.

Heater testing was performed using the coolant supply procedures from SAE J381. The average cab temperature increased 86.5° F from -10° F to 75.6° F within the prescribed 30 minutes utilizing the right side under seat auxiliary heater. The cab was contained in a cold chamber at -10° F during the duration of the test.



VALIDATION TEST: TR#19-0047 R00

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer". The signature is fluid and cursive, with a large initial "D" and "A".

David Archer, Vice President of Engineering

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



**Certification Document CD0168
Velocity® & Impel®
Air Conditioning & Defrost**

Pierce Manufacturing certifies the performance of the Velocity® & Impel® cab air conditioning and defrost system.

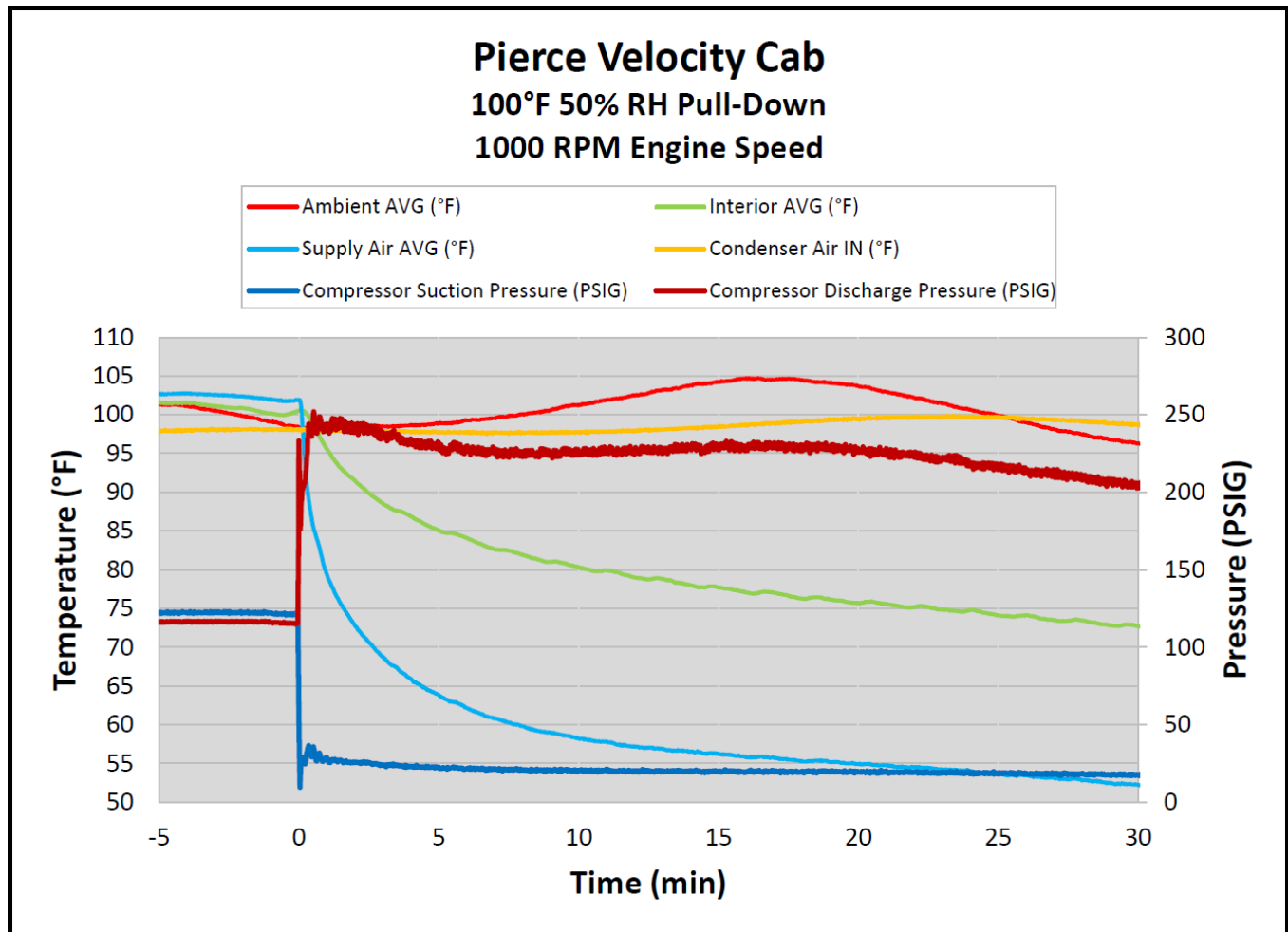
The air conditioning and defrost system was tested successfully in an environmental chamber.

Air Conditioning:

Air conditioning performance testing was conducted at an ambient of 100°F and 50 percent relative humidity. Engine speed was maintained at 1000 rpm with the controls set to maximum cooling.

All temperature probes were monitored to confirm temperature stabilization. The transient test began when all the vehicle doors were closed, and the air conditioning was turned on.

The average cab temperature dropped to 72.6 °F at the end of the 30-minute test.



Defrosting

Defroster testing was performed in accordance with *SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements-Trucks, Buses, and Multipurpose Vehicles*.

This SAE Recommended Practice establishes uniform test procedures and performance requirements for the defrosting system of enclosed cab trucks, buses, and multipurpose vehicles. Current engineering practice prescribes that for laboratory evaluation of defroster systems, an ice coating of known thickness be applied to the windshield and left- and right-hand side windows to provide more uniform and repeatable test results, even though under actual conditions such a coating would necessarily be scraped off before driving. The test condition, therefore, represents a more severe condition than the actual condition, where the defroster system must merely be capable of maintaining a cleared viewing area.

During the test, the vehicle is cold-soaked to 0° F in a cold chamber. A prescribed layer of ice is applied to the windshield. The defroster is then run and the advancing melt boundary marked as the test proceeds.

The SAE prescribed area of the windshield was 100% cleared within the specified 30 minute period.

Defrost Results

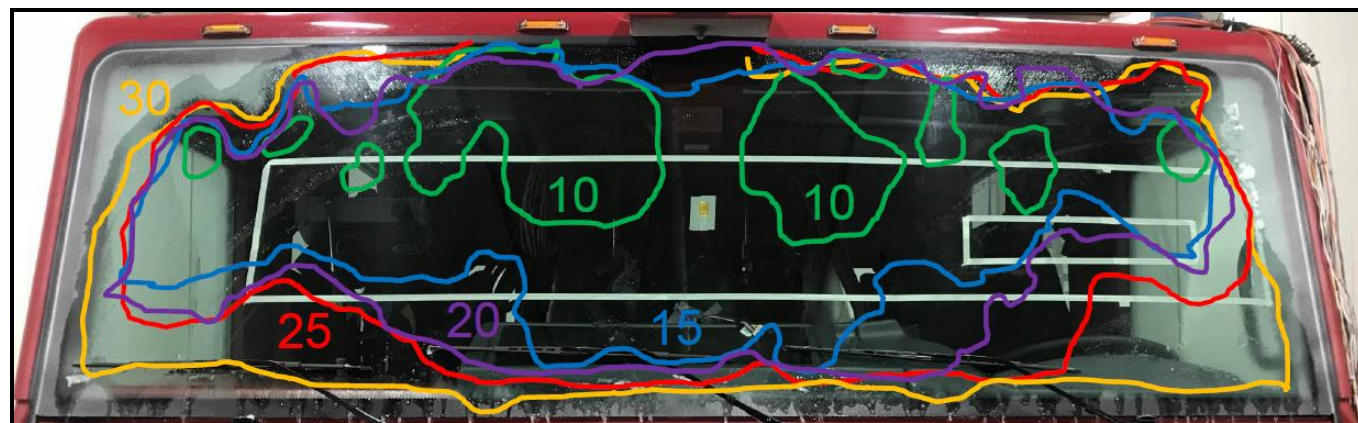
Start of Test



15 Minutes



30 Minutes



Right

Viewed From Outside

Left

VALIDATION TEST: MCC Test Report TR#19-0047 R00

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer". The signature is fluid and cursive, with a large initial "D" and "A".

David Archer
Vice President of Engineering

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY

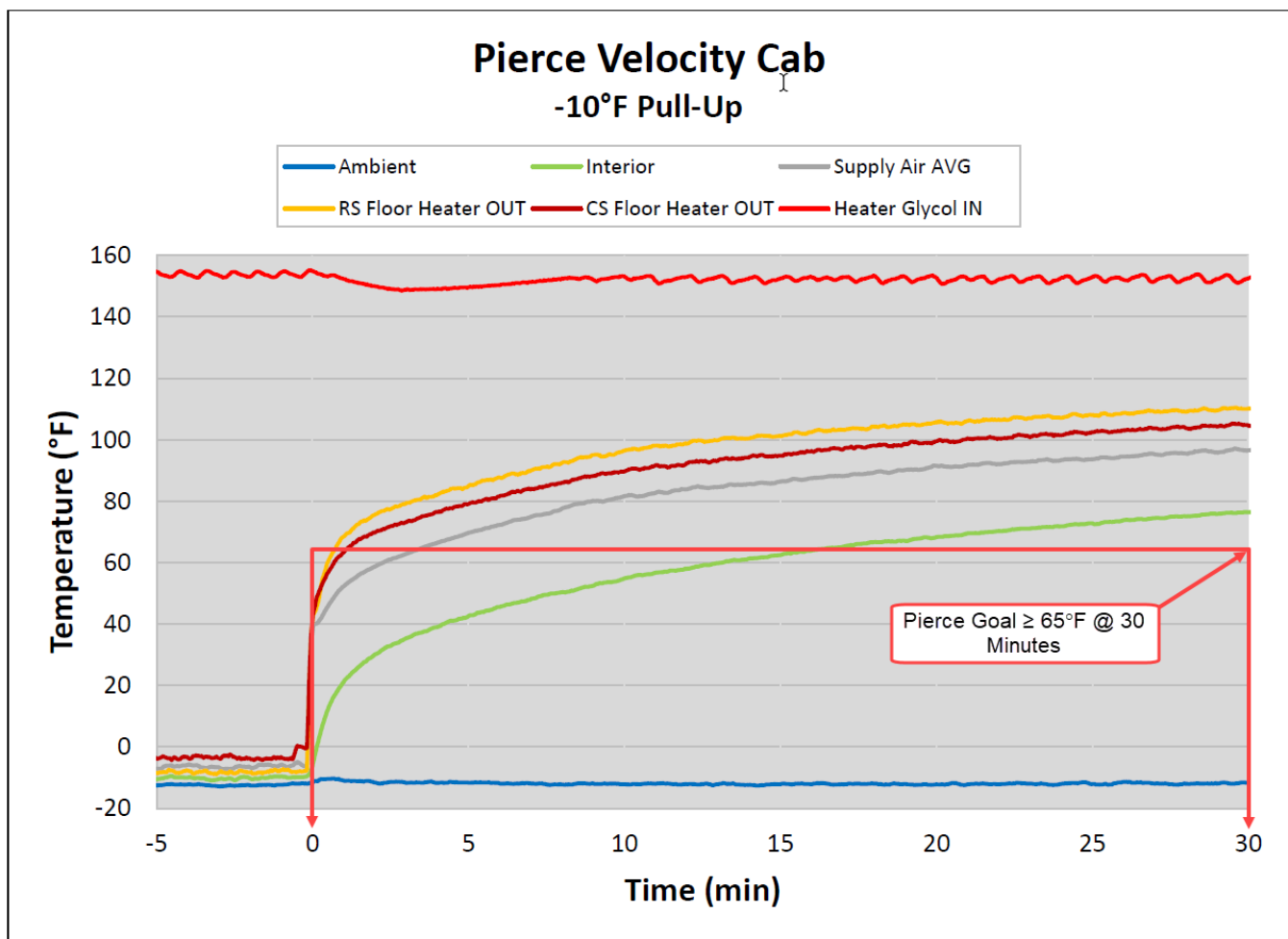


Certification Document CD0176 Velocity® & Impel® Cab Heater

Pierce Manufacturing, in conjunction with Mobile Climate Control, Inc., certifies the performance of the Velocity® & Impel® cab heat system.

The Velocity® & Impel® Heater System was tested successfully in an environmental chamber.

Heater testing was performed using the coolant supply procedures from SAE J381. The average cab temperature increased 86.5° F from -10° F to 75.6° F within the prescribed 30 minutes utilizing the right side under seat auxiliary heater. The cab was contained in a cold chamber at -10° F during the duration of the test.



VALIDATION TEST: TR#19-0047 R00

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer". The signature is fluid and cursive, with the first name being more prominent.

David Archer, Vice President of Engineering

Mobile Climate Control, Inc.

A handwritten signature in purple ink, appearing to read "Brent Griffith". The signature is cursive and clearly legible.

Brent Griffith
Lead Test Engineer & Large Application Specialist

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



**Certification Document CD0177
Velocity® & Impel®
Air Conditioning & Defrost**

Pierce Manufacturing, in conjunction with Mobile Climate Control, Inc., certifies the performance of the Velocity® & Impel® cab air conditioning and defrost system.

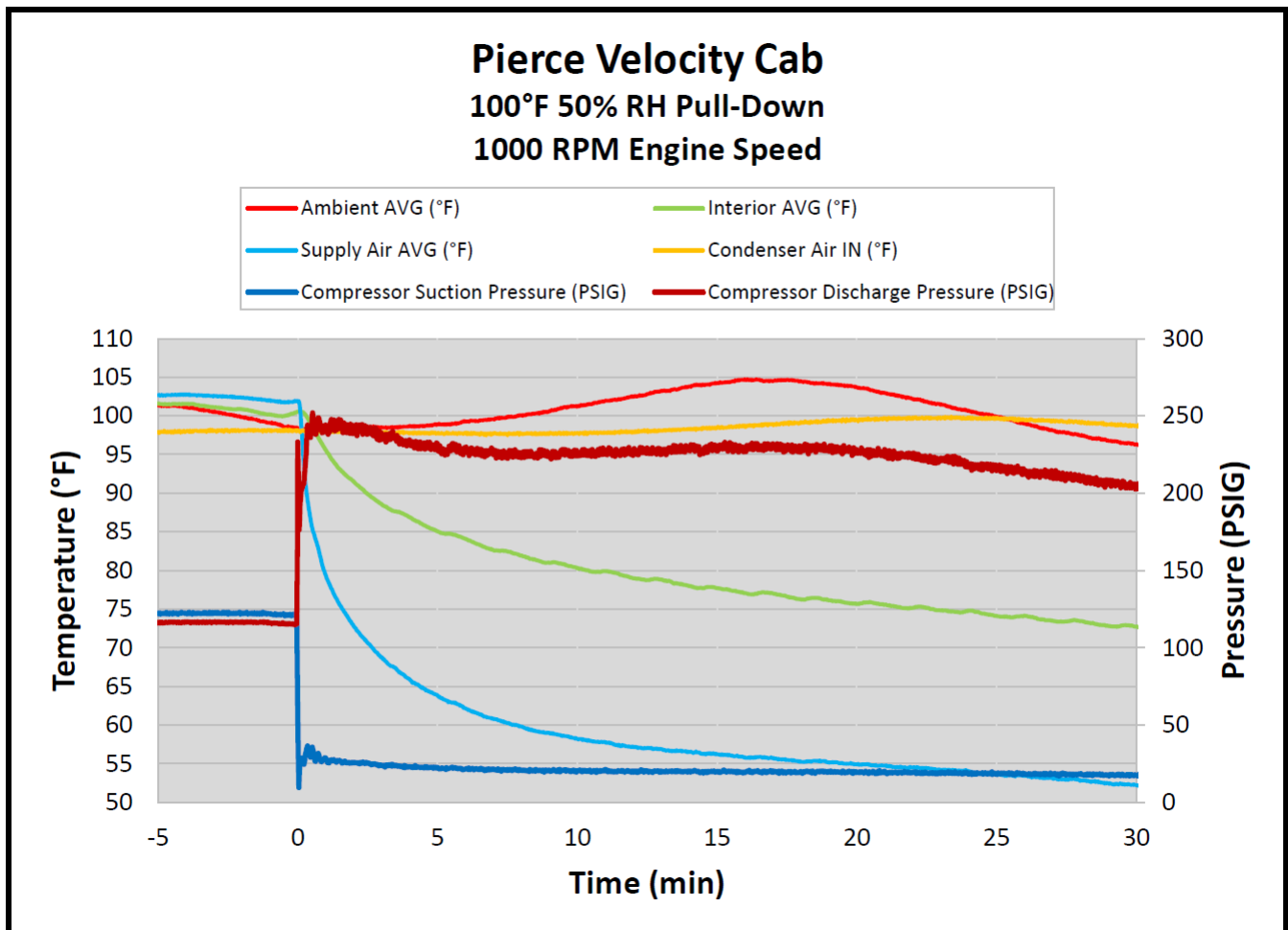
The air conditioning and defrost system was tested successfully in an environmental chamber.

Air Conditioning:

Air conditioning performance testing was conducted at an ambient of 100°F and 50 percent relative humidity. Engine speed was maintained at 1000 rpm with the controls set to maximum cooling.

All temperature probes were monitored to confirm temperature stabilization. The transient test began when all the vehicle doors were closed, and the air conditioning was turned on.

The average cab temperature dropped to 72.6 ° F at the end of the 30-minute test.



Defrosting

Defroster testing was performed in accordance with *SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements-Trucks, Buses, and Multipurpose Vehicles*.

This SAE Recommended Practice establishes uniform test procedures and performance requirements for the defrosting system of enclosed cab trucks, buses, and multipurpose vehicles. Current engineering practice prescribes that for laboratory evaluation of defroster systems, an ice coating of known thickness be applied to the windshield and left- and right-hand side windows to provide more uniform and repeatable test results, even though under actual conditions such a coating would necessarily be scraped off before driving. The test condition, therefore, represents a more severe condition than the actual condition, where the defroster system must merely be capable of maintaining a cleared viewing area.

During the test, the vehicle is cold-soaked to 0° F in a cold chamber. A prescribed layer of ice is applied to the windshield. The defroster is then run and the advancing melt boundary marked as the test proceeds.

The SAE prescribed area of the windshield was 100% cleared within the specified 30 minute period.

Defrost Results

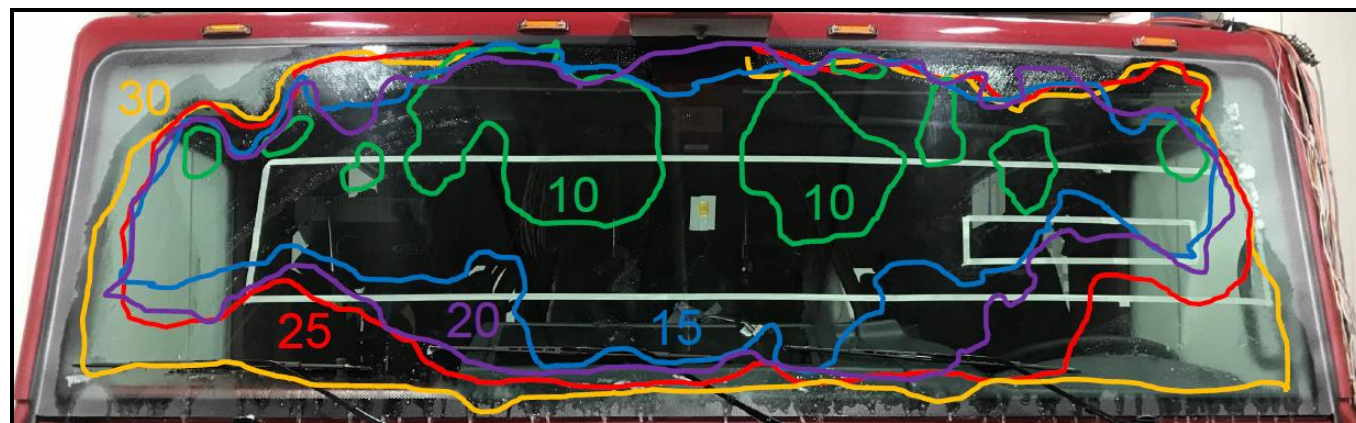
Start of Test



15 Minutes



30 Minutes



Right

Viewed From Outside

Left

VALIDATION TEST: MCC Test Report TR#19-0047 R00

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer".

David Archer
Vice President of Engineering

Mobile Climate Control, Inc.

A handwritten signature in purple ink, appearing to read "Brent Griffith".

Brent Griffith
Lead Test Engineer & Large Application Specialist

WARRANTIES

Exhibit "C"

Bid #893



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: 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: 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.



Cummins Warranty

Worldwide

Fire Apparatus/Crash Trucks



Coverage

Products Warranted

This Warranty applies to new diesel Engines sold by Cummins and delivered to the first user on or after April 1, 2007, that are used in fire apparatus truck and crash truck* applications Worldwide.

Base Engine Warranty

The Base Engine Warranty covers any failures of the Engine which result, under normal use and service, from a defect in material or factory workmanship (Warrantable Failure). This Coverage begins with the sale of the Engine by Cummins and ends five years or 100,000 miles (160,935 kilometers), whichever occurs first, after the date of delivery of the Engine to the first user.

Engine aftertreatment components included in the Cummins Critical Parts List (CPL) and marked with a Cummins part number are covered under Base Engine Warranty.

Additional Coverage is outlined in the Emission Warranty section.

These Warranties are made to all Owners in the chain of distribution and Coverage continues to all subsequent Owners until the end of the periods of Coverage.

Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair the damage to the Engine resulting from a Warrantable Failure.

Cummins will pay for the lubricating oil, antifreeze, filter elements, belts, hoses and other maintenance items that are not reusable due to the Warrantable Failure.

Cummins will pay for reasonable labor costs for Engine removal and reinstallation when necessary to repair a Warrantable Failure.

Cummins will pay reasonable costs for towing a vehicle disabled by a Warrantable Failure to the nearest authorized repair location. In lieu of the towing expense, Cummins will pay reasonable costs for mechanics to travel to and from the location of the vehicle, including meals, mileage and lodging when the repair is performed at the site of the failure.

Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in Cummins Operation and Maintenance Manuals. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of the applicable Warranty, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Warrantable Failure and make the Engine available for repair by such facility. Except for Engines disabled by a Warrantable Failure, Owner must also deliver the Engine to the repair facility.

Service locations are listed on the Cummins Worldwide Service Locator at cummins.com.

Owner is responsible for the cost of lubricating oil, antifreeze, filter elements and other maintenance items provided during Warranty repairs unless such items are not reusable due to the Warrantable Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Warrantable Failure.

Owner is responsible for non-Engine repairs and for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs and other losses resulting from a Warrantable Failure.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this plan in the 3rd, 4th and 5th years of Base Engine Warranty. The deductible will not be charged during the first 2 years of the Base Engine Warranty.

Limitations

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel



exhaust fluid.

This Warranty does not apply to accessories supplied by Cummins which bear the name of another company. Such non-warranted accessories include, but are not limited to: alternators, starters, fans, air conditioning compressors, clutches, filters, transmissions, torque converters, vacuum pumps, power steering pumps, fan drives and air compressors. Cummins branded alternators and starters are covered for the first two years from the date of delivery of the Engine to the first user, or the expiration of the Base Engine Warranty, whichever occurs first.

Failures resulting in excessive oil consumption are not covered beyond the duration of the Coverage or 100,000 miles (160,935 kilometers) or 7,000 hours from the date of delivery of the Engine to the first user, whichever of the three occurs first. Before a claim for excessive oil consumption will be considered, Owner must submit adequate documentation to show that consumption exceeds Cummins published standards.

Failures of belts and hoses supplied by Cummins are not covered beyond the first year from the date of delivery of the Engine to the first user or the duration of the Warranty, whichever occurs first.

Parts used to repair a Warrantable Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not approved by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Warrantable Failure assumes the identity of the part it replaced and is entitled to the remaining Coverage hereunder.

Cummins Inc. reserves the right to interrogate Electronic Control Module (ECM) data for purposes of failure analysis.

CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THIS WARRANTY AND THE EMISSION WARRANTY SET FORTH HEREINAFTER ARE THE SOLE WARRANTIES MADE BY CUMMINS IN REGARD TO THESE ENGINES. CUMMINS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Emission Warranty

Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins that are used in the United States** in vehicles designed for transporting persons or property on a street or highway. This Warranty applies to Engines delivered to the first user on or after September 1, 1992.

Coverage

Cummins warrants to the first user and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. federal emission regulations applicable at the time of manufacture and that it is free from defects in material or factory workmanship which would cause it not to meet these regulations within the longer of the following periods: (A) Five years or 100,000 miles (160,935 kilometers) of operation, whichever occurs first, as measured from the date of delivery of the Engine to the first user or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

Limitations

Failures, other than those resulting from defects in material or factory workmanship, are not covered by this Warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs or other losses resulting from a Warrantable Failure.

CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

* Airport operated crash trucks and fire department operated trucks employed to respond to fires, hazardous material releases, rescue and other emergency-type situations.

** United States includes American Samoa, the Commonwealth of Northern Mariana Islands, Guam, Puerto Rico and the U.S. Virgin Islands.



Cummins Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

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ATTACHMENT 2

R. H. SHEPPARD CO., INC.
101 Philadelphia St.
Hanover, PA 17331
Pierce Manufacturing Inc.
2600 American Drive
Appleton, WI 54912

LIMITED WARRANTY: The R. H. Sheppard Co. Inc., (“Sheppard”) warrants all M110PKG1 and M110SAU1 steering gears manufactured and sold to Pierce Manufacturing Inc. (“Pierce”) for application on Pierce TAK-4 equipped vehicles to be free from defects of workmanship and material under normal use and service for a period of thirty six months from the in service date of the vehicle to its original owner.

Vehicle applications where Sheppard product is used require an application approval before production build. If Pierce uses Sheppard product for any purpose or application which has not been approved by Sheppard in advance, including aftermarket devices (defined as a device added to the steering system directly or indirectly affecting the performance or operation of the Sheppard product in its approved application) not tested and approved by Sheppard this limited warranty **SHALL NOT APPLY AND SHALL BE VOID. SHEPPARD MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED. SHEPPARD EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.** **SHEPPARD SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES OR FOR LOSS OR DAMAGE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF A PRODUCT.** Pierce expressly acknowledges its obligation to inform all users (customers) of the above disclaimer.

CONDITIONS: Claims under this Limited Warranty may only be made by Pierce. In no event shall Sheppard be held liable for warranty charges by unauthorized persons. No allowance will be made for repairs or alterations, unless made with the written consent of Sheppard. Authorized Pierce dealers shall be the only authorized repair facility for Sheppard products applied to Pierce vehicles. Any warrantable repair made under this Limited Warranty must be made on or before 36 months of the in-service date for the Product to which the claim relates. Sheppard shall not be liable for claims made after such date. Sheppard product fitted to Pierce vehicles that are repaired at a repair facility other than an authorized Pierce dealer within the warranty period will be considered for payment under the guidelines of this agreement only by joint written consideration of Sheppard and Pierce warranty departments. It shall be the responsibility of the Pierce warranty department to notify Sheppard if and when this situation occurs. Sheppard will not be held responsible for damage to other steering components such as but not limited to pumps and reservoirs due to improper adjustment of steering gear relief plungers. Vehicle downtime and towing will not be considered under warranty.

REMEDIES: The sole and exclusive remedy of Pierce for Sheppard’s breach of the foregoing warranty is limited to the return and repair or reimbursement as follows:

R. H. SHEPPARD CO., INC. WARRANTY
Pierce Manufacturing Inc.
Page 2

Warranty Support: In support of the Pierce dealer network, Sheppard will provide a toll-free "Hotline" service to assist in the diagnosis and troubleshooting of steering problems. The R. H. Sheppard Co., Inc. Field Service Department can be reached at 1-800-274-7437 for assistance. Sheppard will require that Pierce dealers contact this toll-free "Hotline" for approval before product is removed from a vehicle in a warranty situation. When contacted regarding a warranty situation, the Sheppard representative will provide an authorization number for removal of the product. This Returned Goods Authorization (RGA) number must be included in all warranty correspondence and attached to all returned goods.

Procedure: In the event of a warranty situation, the servicing dealer shall contact the Sheppard Hotline and receive an RGA number before replacing any steering gear. For M110PKG1 and M110SAU1 steering gear models, the dealer will first obtain an RGA number from Sheppard, and then order the replacement gear from Pierce. Replacement M110PKG1 and M110SAU1 steering gears shall be shipped from Pierce once those models are in full production. A warranty claim for both parts and labor will then be generated by the dealer and sent to Pierce. After reviewing the claim, Pierce will submit it to Sheppard for reimbursement.

Parts Reimbursement: Sheppard agrees to reimburse Pierce at Pierce's purchase price plus 30% mark-up for parts found to be defective within the warranty period. Parts being returned for warranty consideration shall be sent to the R. H. Sheppard Company, 447 E. Middle St., Hanover, PA 17331 ATTN: Warranty Dept. Sheppard's determination as to whether the part is covered by the foregoing warranty is final and conclusive. Sheppard requires the return of complete steering gears only. Individual seals replaced under warranty **should not** be returned unless specifically requested by Sheppard. All parts being returned for warranty consideration must be clearly tagged with all pertinent warranty information including, but not limited to (1) Returned Goods Authorization number (RGA); (2) claim number; (3) date in service; (4) date of failure; (5) mileage; (6) part number; (7) labor hours; (8) dealer labor rate and; (9) dollar amount claimed. Claims submitted without prior authorization are subject to rejection under this agreement.

Labor: Labor to repair Sheppard product found to be defective within the warranty period will be reimbursed at not more than 10 hours per vehicle. Labor shall be reimbursed at the rate of \$85.00 USD per hour for M110PGK1 and M110SAU1 steering gears.

Freight: Pierce will collect M110PGK1 and M110SAU1 warranty material at a designated collection point. Inbound freight to the Pierce collection point will be the responsibility of Pierce. All warranty material should be returned from the Pierce collection point to R. H. Sheppard Co. Freight Collect by a Sheppard-specified common carrier based on location of the Pierce collection point. Sheppard does not require the return of failed seals. Any freight charges incurred for the return of seals will be the responsibility of Pierce. Parts returned for warranty consideration without prior authorization are subject to rejection under this agreement and may be subject to a charge back of inbound freight charges. Parts rejected under this warranty will be returned to Pierce Freight Collect or scrapped by Sheppard at Pierce's discretion.

R. H. SHEPPARD CO., INC. WARRANTY
Pierce Manufacturing Inc.
Page 3

Outside Purchases: Pierce authorized dealers shall be the only outlet for repair, warranty service and parts for Sheppard products applied to Pierce vehicles. Sheppard will not be responsible for consumables such as hoses, belts, fluids, fittings or miscellaneous shop material that may be required for the repair of the product.

Warranty Documentation: Warranty credit memos will be issued monthly to the Pierce Warranty Department. Monthly credit memos will include (1) claim number; (2) part number; (3) parts reimbursement; (4) labor reimbursement; (5) any applicable Pierce reference number and; (6) reason for rejection or acceptance of the claim. Credit memos will be issued in U.S. funds. Debits for warranty claims will not be accepted under this agreement. Claim disposition will constitute the final and conclusive resolution of warranty claims.

Parts Retention: Sheppard will retain parts submitted for warranty consideration for a period of sixty (60) days for any material found to be rejected for warranty. Sheppard will notify Pierce within sixty (60) days of receipt of Sheppard's determination as to whether any such part is covered by this warranty. Warranty reimbursement will be issued within thirty days of receipt of material at Sheppard.

Good-Will Requests: Good-Will requests will be considered jointly between Sheppard and Pierce for equitable compensation.

RECALLS: Sheppard retains the right to review information regarding federal motor vehicle recall and /or product repair programs if Sheppard products fitted to Pierce vehicles are alleged to be non-compliant with federal motor vehicle safety standards. Sheppard retains the right to review any claims of product defect or non-compliance before participating in reimbursement of expenses incurred as a result of alleged non-compliance or defect of its products. Sheppard agrees to negotiate in good faith for the reimbursement of expenses incurred by Pierce for all administrative, material and labor cost and expense associated with any recall where Sheppard product is found to be defective or non-compliant with federal motor vehicle standards.

MISCELLANEOUS: This writing constitutes the full complete and final statement of Sheppard's limited warranty for M110PKG1 and M110SAU1 products sold to Pierce. All prior oral or written correspondence, test data, negotiations, representations, understandings and the like regarding products are merged in this writing and extinguished by it. This limited warranty may not be altered, amended extended or modified except by a writing signed by the President or Vice President of Sheppard. No employee, vendor, dealer, distributor or other representative of Sheppard has authority to make statements to extend, expand, alter or amend the terms of this Limited Warranty. Sheppard expressly disclaims any statements contrary to the Limited Warranty. Sheppard's failure at any time to enforce any of the terms and conditions stated herein shall not constitute a waiver of any provisions herein. This Limited Warranty shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

**R. H. SHEPPARD CO., INC. WARRANTY
Pierce Manufacturing Inc.
Page 4**

Any legal actions which may arise as a result of disputes, controversies or claims arising out of or related to this limited warranty shall be in such forum as Sheppard and Pierce shall agree, or, in the absence of agreement, in a court of appropriate jurisdiction other than in the county in which either party is located. This Limited Warranty shall not be assigned by Pierce.

COOPERATIVE EFFORT: Sheppard and Pierce agree to work cooperatively toward expanding this warranty coverage to a period of sixty months from the in service date. These cooperative efforts shall focus on examining the effects of increased heat generated by 2007 model engines and its impact on the entire power steering system.

AGREEMENT: This agreement is effective April 3, 2006 and may be modified by mutual agreement between Sheppard and Pierce of a signed amendment to be attached to the original Limited Warranty. There are no third party beneficiaries to this Limited Warranty. This warranty agreement applies to Pierce authorized dealers only. It does not encompass any special arrangements that Pierce may now have or that Pierce may enter into, with any other segments of the trucking industry. This warranty agreement does not apply to non-conforming product removed at Pierce assembly plants.

This Limited Warranty agreement between the R. H. Sheppard Co., Inc and Pierce Manufacturing Inc. may be terminated by either party with thirty days written notice prior to termination.

Signed at Pierce Manufacturing Inc., Appleton, WI this _____ day of _____, 2006.

R. H. SHEPPARD CO., INC.

PIERCE MANUFACTURING INC.

Authorized Signature

Authorized Signature

Title

Title



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 (Expected Life of Apparatus) |
| Conditions and Exclusions: 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

Three (3) Year Material and Workmanship TAK-4 Independent Front Suspension

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 TAK-4 Front Independent Suspension and Steering Gears 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: | Three (3) Years -or- 30,000 Miles |
| Conditions and Exclusions: See Also Paragraphs 2 thru 4 | This limited warranty excludes brake pads, brake rotors, seal boots and shock absorbers. |

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.



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"):

| | |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Coverage: | The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description |
| 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: See Also Paragraphs 2 thru 4 | The exclusions listed in the attached Meritor 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® 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) Unl=Unlimited | P=Parts Only 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 or by contacting Meritor at 866-OnTrac1 (866-668-7221).



LINEHAUL WARRANTY INFORMATION

Linehaul Vehicles

- Bulk Hauler
- Flatbed
- Livestock Hauler
- Refrigerated Freight
- Chip Hauler (Truck)*
- General Freight
- Moving Van
- Tanker
- Doubles
- Grain Hauler
- Pipe Hauler
- 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 ^{1,2} | MT-34-14X/P | MT-40-943 |
| RT-46-160/P ^{1,2} | MT-40-14T/P | MT-40-943-SP |
| RT-46-164EH/P ^{1,2} | MT-40-14X/P | RZ-166 ² |
| RT-50-160/P ^{1,2} | 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 |

¹ These models required for Chip Hauler and Linehaul warranty consideration.
² 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™ ² | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™ | 5/500/P, 1/Unl/L |
| EX+ Air Disc Brake Extended Standard Warranty ³ | 5/500/P&L |

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

² Based on stamped wear diameter max.

³ 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 ¹ | |
| Standard System ² | 1/100/P&L |
| PreSet by Meritor ³ | 5/500/P&L |
| AxlePak5 ⁴ | 5P/L |
| AxlePak7 ⁵ | 7P/L |

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

² When installed by Meritor.

³ Requires approved hubcap stating PreSet by Meritor on hubcap face.

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

⁵ 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 Axles¹

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

¹ 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) ¹ | |
| Major Structural Components | 5/500/P, 1/100/L |
| Curbing Damage Warranty ² | 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 |

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

² “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 ¹ | MFS-8-153B-N | MFS-12-132B-N | MFS-13-132B-N | MFS-16-135A-N | MFS-22H-193A-N |
| FL-941 | | | | | |

¹ 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 ¹ | RS-26-185 | 71162 |
| MS-19-14X | RS-21-145/A | RC-23-165 ¹ | 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 | |

¹ 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 ¹ |
| 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 ¹ | 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 |

¹ 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 ³ | 2/200/P |
| Cam | 3/Unl/P |
| Q+ Drum Brake™ | 3/Unl/P&L |
| Q+ Drum Brake™ ³ | 2/200/P&L |
| ASA | 3/Unl/P |
| ASA ³ | 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™ ² | 12-Years or Wearable Life/P |
| EX+ Air Disc Brake™ | 2/Unl/P&L |

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

² Based on stamped wear diameter max.

³ Applies to Tour Bus and Cross Country Coach only.

Trailer Axles

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

¹ 9000 Series is 3/Unl/P, 1/Unl/L

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

³ When installed by Meritor.

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

⁵ 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 ¹ | |
| Standard System | 1/Unl/P&L |
| AxlePak7 | 7/P&L |
| Beam and Brackets | 7/P, 1/L |

¹ 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) ¹ | |
| Major Structural Components | 5/Unl/P, 1/Unl/L |
| Curbing Damage Warranty ² | 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 ³ | 5/Unl/P, 3/Unl/L |

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

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

² "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.

³ Raw wood applications 3/Unl/P, 1/Unl/L

TAG/Pusher Axles

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

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

¹ 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 ^{1,2} | 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 ^{1,2} | |
| MT-44-14X/P | MT-52-616-SP | RT-70-380 | |

¹ Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.
² 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 ³ | 2/100/P |
| Cam Cast Plus™ | 2/100/P&L |
| Q+ Drum Brake™ | 3/Unl/P&L |
| Q+ Drum Brake™ ² | 2/100/P&L |
| ASA | 3/Unl/P |
| ASA ² | 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 |

¹ Based on stamped wear diameter max.
² Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.
³ 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 ³ |
| RT-46-160/P/A ^{1,3} |
| RT-46-164EH/P/A ^{2,3} |
| RT-50-160/P/A ³ |
| RZ-166 |

¹ U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.
² Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.
³ 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 ¹ | 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 ¹ | 5/Unl/P, 3/Unl/L |

¹ Raw wood applications 3/Unl/P, 1/Unl/L
 (For axle and ABS coverage, refer to appropriate product warranties.)

Trailer Axles

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

¹ 9000 Series is 3/Unl/P, 1/Unl/L.
² Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.
³ 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 | |

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

¹ 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 |

¹ 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-941¹ MFS-13-155

¹ 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-23-162¹
 71163 RC-23-165¹

¹ 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™¹ 2/100/P&L
 ASA¹ 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

¹ Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

Center Non-drive Axles – 5/300/P&L

MC-26000
 71063
 79063



OFF-HIGHWAY SERVICE WARRANTY INFORMATION

Industrial And Off-Highway Service Vehicles

- | | | | |
|-----------------------|--------------------------|-----------------------|--------------------|
| ■ Load-On/Load-Off | ■ Yard Jockey | ■ Specialized Mining | ■ Rail Car Mover |
| ■ Port Tractor | ■ All-Terrain Crane | ■ Excavator | ■ Loader |
| ■ Rail Yard Spotter | ■ Rough Terrain Crane | ■ Compactor | ■ Tow Tractor |
| ■ Roll-On/Roll-Off | ■ Forestry | ■ Fertilizer Spreader | ■ Pushback Tractor |
| ■ Stevedoring Tractor | ■ Material Handling | ■ Snow Blower | |
| ■ Trailer Spotter | ■ Specialized Heavy Haul | ■ Mining | |

Industrial And Off-Highway Service Typically Is

- Low mileage operation
- Low speed vehicle speed restriction
- Vehicles are **not** typically licensed for highway use
- Six (6) starts/stops per mile (typical)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Contact Meritor regarding specific application approval questions on any product line.

Drivelines – 1/Unl/P

RPL MXL

Front Non-Drive Steer Axles – 1/Unl/P

| | | |
|---------------|---------------|----------------|
| FF - 941 | MFS-12-144A-N | MFS-18-193A-N |
| FF - 943 | MFS-13-143A-N | MFS-20-133A-N |
| FF - 961 | MFS-13-144A-N | MFS-20-135A-N |
| FF - 966 | MFS-14-143A-N | MFS-20-192A-N |
| FG - 941 | MFS-16-122A-N | MFS-20-193A-N |
| FG - 943 | MFS-16-133A-N | MFS-22-135A-N |
| FL - 941 | MFS-16-135A-N | MFS-22H-135A-N |
| FL - 943 | MFS-16-143A-N | MFS-22-193A-N |
| FN - 951 | MFS-18-133A-N | MFS-22H-193A-N |
| MFS-12-143A-N | MFS-18-135A-N | MON-ZO FAMILY |

Brake Components

| | |
|------------------------------------------------|-----------|
| Cam P | 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 |

Planetary Axles – 1/Unl/P

| | | | |
|-----|-----|-----|-----|
| MOB | MOF | MOS | MOZ |
| MOC | MOG | MOT | |
| MOD | MOH | MOX | |
| MOE | MOR | MOY | |

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



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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For more information:
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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: 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.

WARRANTY

MODEL YEAR 2021 VEHICLES



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.

How to Read Warranty Coverage (Example)

| Number of Years | Mileage (in thousands) Unl=Unlimited | P=Parts Only P&L=Parts & Labor |
|-----------------|--------------------------------------|--------------------------------|
| 3 | 300 | P |

- The standard aftermarket warranty for WABCO products - including WABCO Original parts, WABCO Reman Solutions, ProVia quality aftermarket parts and WABCO retrofit solutions - is one year, parts only from in-service date when purchased from ZF distributor networks or its affiliates and/or subsidiaries.

WARRANTY - MODEL YEAR 2021 VEHICLES

LINEHAUL/GENERAL SERVICE WARRANTY INFORMATION

LINEHAUL/GENERAL SERVICE VEHICLES

- Aerial Ladder Truck
- Flatbed
- Livestock Hauler
- Refrigerated Freight
- Aerial Platform
- Front Engine Commercial Chassis
- Meat Packer
- School Bus
- Ambulance
- Front Engine Integral Coach
- Moving Van
- Stake Truck
- Auto Hauler
- General Freight
- Municipal Truck
- Tanker
- Beverage Truck
- Grain Hauler
- Pipe Hauler
- Tanker Truck
- Bulk Hauler
- Intercity Coach
- Platform Auto Hauler
- Triples
- Chip Hauler (Truck)
- Intermodal Chassis
- Pumper
- Tour Bus
- Cross Country Coach
- Rear Engine Integral Coach
- Wrecker
- Doubles
- Recreational Vehicles

LINEHAUL TYPICALLY IS

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction

GENERAL SERVICE TYPICALLY IS

- Moderate mileage operations (less than 60,000 miles/year)
- Well maintained public roads (less than 10% off-road)
- Less than three (3) stops per mile

| WABCO Components ¹ | | WABCO Components ¹ (cont.) | |
|-----------------------------------------------------------|-----------|---------------------------------------|---------------------|
| Air Management | | Safety | |
| Air Brake Valves | 1/100/P&L | OnGuardACTIVE® | 3/300/P&L |
| Trailer Lift Axle Control Valve | | OnLane® | |
| Trailer Control Line Filter ³ | | OnLaneALERT® | |
| Air Compressors (ALL) ² | 2/200/P&L | OnSide® | |
| Air Dryers (ALL) | 3/300/P&L | Trailer SafeStart™ | |
| | | Trailer TailGUARD™ | |
| Aerodynamics | | Telematics | |
| OptiFlow® TrailerSkirt | 2/UnU/P | TrailerCAST™ Telematics Device | 3/300/P&L |
| OptiFlow® Trailer Tail and AutoTail | 2/UnI/P | Wheel End Solutions | |
| Braking Systems | | EasyFit™ Slack Adjuster | 6/600/P |
| ABS (Anti-Lock Braking System) Air | 3/300/P&L | MAXXUS™ Truck Air Disc Brake | 5/500/P&L |
| ABS (Anti-Lock Braking System) Hydraulic | | IVTM - Wheel Module | 6/P |
| Electronic Braking System (EBS) | | IVTM - All Other Products | 2/P |
| Electronic Stability Control (ESC) | | Pan 17 and 19 Air Disc Brake | 2/UnI/P and 1/UnI/L |
| Roll Stability Control (RSS) | | Pan 22 Air Disc Brake | 5/500/P and 1/L |
| Trailer Roll Stability Support (RSS) | | TRISTOP™ D Actuator w/ IBV or IRB | 6/600/P |
| Trailer ABS (Anti-Lock Braking System) ³ | | TRISTOP™ D Actuator | 3/300/P |
| Driveline Suspension Control | | UNISTOP™ Actuator | 2/200/P |
| Clutch Controls | 2/200/P&L | Trailer MAXX22T™ Air Disc Brake | 5/500/P and 1/L |
| Leveling Valves | 1/100/P&L | | |
| OptiRide® Automated Manual Transmission (AMT) | | | |
| OptiRide® Electronically Controlled Air Suspension (ECAS) | 3/300/P&L | | |

¹ ZF and WABCO branded components. ² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. ³ An extended warranty of 4/400/P will apply when a WABCO Trailer Control Line Filter is used in combination with a WABCO Trailer ABS valve.

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



| WABCO Components ¹ | |
|-----------------------------------------------------------------------|-----------|
| Air Management | |
| Air Brake Valves | 1/100/P&L |
| Air Compressors (ALL) ² | |
| Air Dryers (ALL) | |
| Trailer Control Line Filter ³ | |
| Braking Systems | |
| 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) | |
| Trailer ABS Valve ³ | |
| Roll Stability Control (RSS) | |
| Trailer Roll Stability Support (RSS) | |
| Driveline Suspension Control | |
| OptiRide [®] Electronically Controlled Air Suspension (ECAS) | 2/200/P&L |
| Leveling Valves | 1/100/P&L |
| Clutch Controls | 2/200/P&L |
| Safety | |
| OnGuardACTIVE [®] | 3/300/P&L |
| OnLane [®] | |
| OnLaneALERT [®] | |
| OnSide [®] | |
| Trailer SafeStart [™] | |
| Trailer TailGUARD [™] | |
| Telematics | |
| TrailerCAST [™] Telematics Device | 3/300/P&L |
| Wheel End Solutions | |
| EasyFit [™] Slack Adjuster | 2/200/P |
| MAXXUS [™] Air Disc Brake | 1/Unl/P&L |
| IVTM - Wheel Module | 6/P |
| IVTM - All Other Products | 2/P |
| Pan 22, 19 and 17 Air Disc Brake | 1/Unl/P&L |
| Trailer MAXX22T [™] | 1/Unl/P&L |
| TRISTOP [™] D Actuator w/ IBV | 3/Unl/P |
| TRISTOP [™] D Actuator | 2/200/P |
| UNISTOP [™] Actuator | 1/100/P |

¹ ZF and WABCO branded components. ² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. ³ An extended warranty of 4/400/P will apply when a WABCO Trailer Control Line Filter is used in combination with a WABCO Trailer ABS valve.

WARRANTY - MODEL YEAR 2021 VEHICLES

INDUSTRIAL/OFF-HIGHWAY SERVICE WARRANTY INFORMATION

INDUSTRIAL AND OFF-HIGHWAY SERVICE TYPICALLY IS

- Low mileage operation³
- Vehicles are not typically licensed for highway use

| Market | Common Application Types |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agriculture | Fertilizer Spreader, Tractor, Heavy Duty Ag Trailers, Harvester, Sprayer, Skid Loader, Silage Bagger, Slurry Wagons, Grain Cart |
| Airport Support | Pushback Tractor, Towing Tugs, Aircraft Tow Tractor, Refueling Trucks, Food Service Trucks, Baggage Tractors, De-Icing Equipment, Runway Clearing Equipment |
| Construction | All-Terrain Crane, Rough Terrain Crane, Excavator, Compactor, Wheel Loader, Road Roller, Motor Grader, Articulated Dump Truck, Rubber Tire Road Roller, Backhoe Loaders, Haul Trucks, Scraper Rough Terrain Forklifts, Trenchers, Drills |
| Forestry | Logging Forwarder, Kidder, Loaders, Yard Forklifts, Harvesters Fellers |
| Material Handling | Port Tractor, Rail Yard Spotter, Stevedoring Tractor, Trailer Spotter, Yard Jockey, Scissor Lift, Straddle Carrier, Manlift, Forklift, Boom Lift Telehandlers, Aerial Work Platforms |
| Mining | Specialized Mining, Excavator, Haul Truck, Underground Loader, Service Trucks, Wheel Loaders, Scrapers, Load Haul Dumps, Personnel Transports, Bolters, Scalers |
| Municipal | Street Sweeper, Utility Tractor, Utility Trucks, Tree Trimmers, Dump Trucks, Tow Trucks, Flat Bed Trucks, Winch Applications |
| Oil & Gas | Fracturing Trailer, Injector Heads, Top Drives, Jack/Lift Boats, Wireline Trucks, Load-On / Load-Off |
| Rail | Railcar Mover, Track Layers, Grinders, Platform Crane, Locomotive Railcars, Ballast Equipment, Winch Applications |



| WABCO Components ¹ | |
|------------------------------------------|-----------|
| Air Management | |
| Air Brake Valves | 2/Unl/P |
| Air Compressors (ALL) ² | |
| Air Dryers (ALL) | |
| Brake Actuation | |
| Air/Hydraulic Actuators | 2/Unl/P |
| Master Cylinders | |
| Remote Actuators | |
| Slave and Wheel Cylinders | |
| Two Fluid Actuators | |
| Brake Locks | |
| Brake Locks (ALL) | 2/Unl/P |
| Electric Brake Locks | |
| Lever Locks | |
| Braking Systems | |
| ABS (Anti-Lock Braking System) Air | 1/100/P&L |
| ABS (Anti-Lock Braking System) Hydraulic | |
| Driveline Suspension Control | |
| Clutch Controls | 1/100/P&L |
| Leveling Valves | |
| Electrohydraulics & Controls | |
| Electronic Pedals | 2/Unl/P |
| Electrohydraulic Brake Valves (EBV) | |
| Pressure Switches | |
| Hydraulic Braking Solutions | |
| Accumulator Charging Valves | 2/Unl/P |
| Hydraulic Throttle Controls and Switches | |
| Modulating Brake Valves | |
| Wheel End Solutions | |
| EasyFit™ Slack Adjuster | 2/200/P |
| Caliper Disc Brakes | 2/Unl/P |
| MAXXUS™ Air Disc Brake | 1/Unl/P&L |
| Multiple Disc Brakes | 2/Unl/P |
| IVTM - Wheel Module | 6/P |
| IVTM - All Other Products | 2/P |
| Pan 22, 19 and 17 Air Disc Brake | 1/Unl/P&L |
| TRISTOP™ D Actuator w/ IBV | 3/Unl/P |
| TRISTOP™ D Actuator | 2/200/P |
| UNISTOP™ Actuator | 1/100/P |

¹ ZF and WABCO branded components. ² WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. ³ Equivalent hours of service limit: 2,000 hours for all components.

TERMS AND CONDITIONS

COVERAGE EXCLUSIONS

PRODUCT DESCRIPTION

ALL PRODUCTS

This Warranty shall not apply to the following, but not limited to: (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, damaged threads, cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (b) sensors damaged during removal when seized in block, or associated with sensor adjustments/ alignments, and (c) damage resulting from the use or installation of non-genuine 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 WABCO name plate, serial numbers or label identifying the device as a ZF 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 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 PRODUCTS

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 PLUS™ DIAGNOSTIC SOFTWARE

Proper diagnostics of WABCO Electronics may require the latest version of TOOLBOX PLUS™. Additional labor due to use of an outdated version of TOOLBOX™ software and/or the time to purchase or install the latest version of TOOLBOX PLUS™ are not covered under product warranty.

WARRANTY - MODEL YEAR 2021 VEHICLES**TERMS AND CONDITIONS****(1) What is Covered by this Commercial Warranty?**

ZF CV Systems North America LLC and its North American subsidiaries and affiliates (ZF) warrant 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 distribution agreements 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 ZF'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 ZF warranty has not expired under the terms stated above, the ZF warranty will 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 ZF distributor networks 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 ZF through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the 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 ZF directly. Failure to notify ZF 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 ZF as to the intended vocational use of the vehicle. This notification can be sent directly to ZF 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 ZF's warranty requires that the application of products be properly approved pursuant to OEM and ZF, 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 "Coverage Exclusions," 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 ZF, (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 ZF.
- (5) 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 ZF or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM dealer or ZF distributor networks' servicer. The dealer or ZF authorized servicer will inspect the vehicle and contact ZF for an evaluation of the claim. When authorized by ZF, the dealer or ZF authorized servicer will repair or replace during the term of this warranty any defective WABCO component covered by this warranty.
- (6) Disclaimer of Warranty and Limitation of remedies.** TO THE MAXIMUM EXTENT PERMITTED BY LAW, THE LIMITED WARRANTY SET FORTH HEREIN IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND/OR WARRANTY FOR HIDDEN OR LATENT DEFECTS, AND IN NO EVENT WILL ZF OR ANY OF ITS AFFILIATES BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, PROGRESSIVE, SPECIAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND.

- (7) 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. Any dispute arising in connection with this agreement shall be governed by and construed according to the laws of the State of Michigan and be brought, heard and determined exclusively in either the Circuit Court for the County of Oakland, State of Michigan or the United States District Court for the Eastern District of Michigan. The parties stipulate that the referenced venues are convenient.
- (8) Remedy. The exclusive remedy under this warranty shall be the repair or replacement of the defective component at ZF's option. ZF reserves the right to require that all applicable covered components are available and/or returned to ZF for review and evaluation. THE MAXIMUM LIABILITY, IF ANY, OF ZF FOR ALL DAMAGES, INCLUDING WITHOUT LIMITATION CONTRACT DAMAGES, BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHER TORT, IS LIMITED TO AN AMOUNT NOT TO EXCEED THE PURCHASE PRICE OF THE PRODUCT and where indicated in the product and application warranty information above, the inclusion of labor is limited to the standard repair time. THE PARTIES ACKNOWLEDGE AND AGREE THAT THE LIMITATION OF DAMAGES PROVISION SET FORTH IN THIS PARAGRAPH SURVIVES BETWEEN THE ORIGINAL END USER AND ZF EVEN IF THE EXCLUSIVE REMEDY SET FORTH ABOVE IS DEEMED TO FAIL OF ITS ESSENTIAL PURPOSE. ZF may change the design or make improvements to its Products without incurring any warranty obligation for previously manufactured Product .
- (9) Entire Agreement. This is the entire agreement between ZF and the Owner about warranty and no, ZF employee, or dealer is authorized to make any additional warranty on behalf of ZF unless in writing and signed by an authorized representative of ZF.





**For further product details contact your distributor or the
WABCO Customer Care Center at 855-228-3203.**

About ZF Friedrichshafen AG

ZF is a global technology company and supplies systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies different kinds of vehicles. With its products, the company contributes to reducing emissions and protecting the climate.

ZF, which acquired WABCO Holdings Inc. on May 29, 2020, now has 160,000 employees worldwide with approximately 260 locations in 41 countries. In 2019, the two then-independent companies achieved sales of €36.5 billion (ZF) and \$3.4 billion (WABCO). For more information, visit: www.wabco-na.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 - or - 100,000 Miles |
| Conditions and Exclusions: 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. 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: 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>Topcoat Durability & Appearance: Gloss, Color Retention & Cracking 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p>Integrity of Coating System: Adhesion, Blistering/Bubbling 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p>Corrosion: Dissimilar Metal and Crevice 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p>Corrosion Perforation 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: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (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: 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:

| | |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coverage: | 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. |
| Warranty Begins: | The date of delivery. |
| Warranty Period Ends After: | Fifty - Four (54) months |
| Conditions and Exclusions: See Also Paragraphs 2 thru 4 | 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 (Whichever occurs first) | | ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------|----------------------------------------------|-----------|
| | Months | Transmission Miles Or Kilometers | Parts | Labor |
| MT, MD 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™, 2400 Series™ | 0-36 | No Limit | No Charge | No Charge |
| HT with Electronic Controls | 0-60 | No Limit | No Charge | No Charge |
| HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700, 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:

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|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coverage: | 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. |
| Warranty Begins: | The date of delivery to the first retail purchaser. |
| Warranty Period Ends After: | Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage |
| Conditions and Exclusions: 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> <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> |

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.

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™

ATTACHMENT 2

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



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 - or - 100,000 Miles |
| Conditions and Exclusions: 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. 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.



AMDOR Inc. TERMS OF BUSINESS AND GENERAL INFORMATION

Warranty:

All AMDOR Inc. roll-up door products are warranted for a period of 10 years from the date of delivery (with the exception of wet paint adhesion - please see below). AMDOR Inc. liability covers the replacement or repair of any component that fails due to defects in material and / or workmanship during the coverage period. We accept no liability for claims made for damages to any part (or parts) of a vehicle and / or machine (of any type) or injury claims by a person or persons assumed or alleged to have been brought about by the use or misuse of any product supplied by AMDOR Inc. Warranty coverage does not extend to door attachments including (but not limited to) decals, emblems, stripes and adhesives.

In order to initiate the claims process please contact your authorized representative of AMDOR Inc. Warranty claims must be accompanied by a written description providing full and reasonable details as to the nature of the defect. Upon receipt of your claim arrangements will be made to inspect the defective product (if necessary). Justified warranty claims will be repaired, exchanged, or credited to the customer's account at AMDOR Inc.'s discretion. All warranty claims must be approved in writing by the Customer Service Manager for AMDOR Inc. There are no exceptions to this clause.

Limited warranty coverage includes the labor associated with the disassembly and assembly of products deemed to be defective by AMDOR Inc. Labor allowances are based on a set time schedule as determined by AMDOR Inc. The maximum allowable hourly labor rate is \$ 50. All warranty labor claims must be approved in writing by an authorized representative of AMDOR Inc. prior to commencement of work. Allowances for removal and installation:

| | |
|------------------------------|-------------|
| Curtain replacement: | 3/4 hour |
| Balancer replacement: | 1 hour |
| Door ajar switch | 3/4 hour |
| Bottom Panel Assembly: | 1/2 hour |
| Slat replacement: | 3/4 hour |
| Door removal and replacement | 1 1/2 hours |

Items authorized for return must be accompanied by a Return Goods Authorization (RGA) number. We will accept collect shipments of items deemed to be defective provided that they are returned via the most economical carrier. Should items be

returned by means other than the most economical carrier the difference will be charged back to the sender.

AMDOR Inc. reserves the right to reject any claim when a product has been opened, interfered with or modified. Claims may also be rejected when damage to the product (or any sub-assembly) has been brought about by accident, misuse, abuse, vandalism, incorrect installation, temperature extremes, chemical exposure or any factor other than regular operating conditions.

Limited Wet Paint Match Adhesion Warranty

AMDOR Inc. warrants wet paint finishes applied by AMDOR utilizing our approved factory paint specification. All wet paint match colors must be approved in writing by an authorized OEM representative. AMDOR Inc. will provide a color spray out for this purpose. The time required for shipping and consideration of initial color spray outs will be considered over and above stated lead times. Warranty coverage will extend for a period of not less than 5 years from the date of delivery as determined by AMDOR Inc.'s Packing Slip. AMDOR reserves the right to determine whether individual units will be replaced and / or repaired by an AMDOR approved vendor. An allowance will be made for labor associated with the disassembly and assembly of individual units at the prescribed hourly rate of \$ 50 per hour. Compensation for labor will not exceed the maximum time allowance permitted for door removal and replacement. Written approval including specified allowance for time must be obtained from AMDOR prior to initiating work. Warranty coverage will extend to the following visible paint system defects:

- 1./ Loss of mechanical adhesion as evidenced by peeling, cracking or blistering which exposes the substrate material.
- 2./ Corrosion of the substrate due to paint system failure.
- 3./ Fading which results in a substantial departure from the primary AMDOR approved body color.

Wet paint adhesion limited warranty coverage will be excluded when damages to the system are determined by AMDOR Inc. to be a result of the following:

- 1./ Damage caused through the use of attachments including (but not limited to) decals, labels, adhesives, non factory approved coatings.
- 2./ Loss of gloss, discoloration or damage due to improper maintenance (including but not limited to) mechanical wash systems, pressure washers, steam cleaners, non approved wash or polishing agents.
- 3./ Abuse, acts of nature, excessive heat / cold, chemical exposure, vandalism and / or accidents.
- 4./ Scratches, chips, abrasions, or dents from any source.

This document supercedes all previous written and / or verbal warranties provided by AMDOR Inc. and / or it's affiliates.

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





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 - or - 100,000 Miles |
| Conditions and Exclusions: 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. 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

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. Aerial Device Models Covered by this warranty include: Aerial Platforms Aerial Ladders 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 - or - 100,000 Miles |
| Conditions and Exclusions: 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 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.

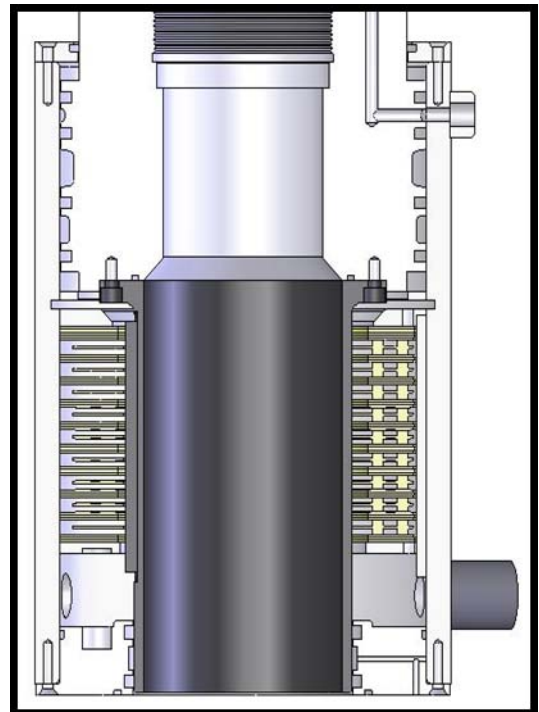
ATTACHMENT 2

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, unreasonable 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__



**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, unreasonably 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.

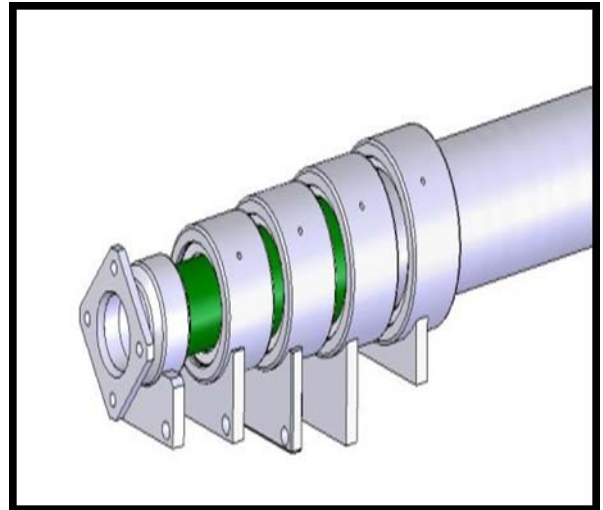
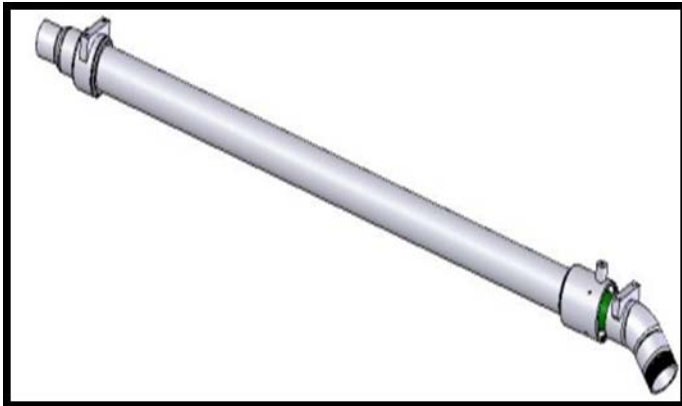
THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR

ATTACHMENT 2

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: 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>Topcoat Durability & Appearance: Gloss, Color Retention & Cracking 0-24 months 100% 25-48 months 50%</p> <p>Integrity of Coating System: Adhesion, Blistering/Bubbling 0-24 months 100% 25-48 months 50%</p> <p>Corrosion: Dissimilar Metal and Crevice 0-24 months 100% 25-48 months 50%</p> <p>Corrosion Perforation 0-24 months 100% 25-48 months 50%</p> <p>This limited warranty applies only to exterior paint.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (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, 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.



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: 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>Topcoat Durability & Appearance: Gloss, Color Retention & Cracking 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p>Integrity of Coating System: Adhesion, Blistering/Bubbling 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p>Corrosion: Dissimilar Metal and Crevice 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p>Corrosion Perforation 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: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (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

Three (3) Year Material and Workmanship

Goldstar® Gold Leaf Lamination

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 Goldstar® gold leaf lamination 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: | Three (3) Years |
| Conditions and Exclusions: 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

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.