



## OROVILLE CITY COUNCIL

Council Chambers  
1735 Montgomery Street  
Oroville, CA. 95965

**March 14, 2024**  
**SPECIAL MEETING**  
**OPEN SESSION 2:30 PM**  
**AGENDA**

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### PUBLIC ACCESS AND PARTICIPATION

To view the meeting, attend the meeting or provide comment, please see the options below. All comments emailed will be provided to the Council Members for their consideration.

#### To View the Meeting:

1. Watch our live feed <https://www.youtube.com/channel/UCAoRW34swYI85UBfYqT7IbQ/>
2. Watch via Zoom  
<https://zoom.us/j/96870319529?pwd=dW9kMGRZSFo5MFFNQk5wVDUzRkRrZz09>  
Meeting ID: 968 7031 9529  
Passcode: 67684553
3. Listen via Telephone  
Telephone: 1-669-900-6833  
Meeting ID: 968 7031 9529  
Passcode: 67684553

#### To Provide Comment to the Council:

1. Email before the meeting by 2:00 PM your comments to [publiccomment@cityoforoville.org](mailto:publiccomment@cityoforoville.org)
2. Attend the meeting in person.

**If you would like to address the Council at this meeting, you are requested to complete the blue speaker request form (located on the wall by the agendas) and hand it to the City Clerk, who is seated on the right of the Council Chamber. The form assists the Clerk with minute taking and assists the Mayor or presiding chair in conducting an orderly meeting. Providing personal information on the form is voluntary. For scheduled agenda items, please submit the form prior to the conclusion of the staff presentation for that item. Council has established time limitations of three (3) minutes per speaker on all items. If more than 10 speaker cards are submitted for an item, the time limitation would be reduced to one and a half minutes per speaker for that item. **(California Government Code §54954.3(b)).** Pursuant to Government Code Section 54954.2, the Council is prohibited from taking action except for a brief response from the Council or staff to statements or questions.**

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### CALL TO ORDER / ROLL CALL

Council Members: Tracy Johnstone, Krysi Riggs, Scott Thomson, Janet Goodson, Shawn Webber, Vice Mayor Eric Smith, and Mayor David Pittman

EnterTextHere

### OPEN SESSION

. Pledge of Allegiance

## **REGULAR BUSINESS - Action Calendar**

### **1. 2023 COMMUNITY DEVELOPMENT BLOCK GRANT APPLICATION**

The Council will approve the submittal of 2023 Community Development Block Grant (CDBG) Application under Amendment #1.

#### **RECOMMENDATION**

**ADOPT RESOLUTION NO. 9233 - A RESOLUTION APPROVING AND APPLICATION FOR FUNDING AND THE EXECUTION FROM A GRANT AGREEMENT AND ANY AMENDMENTS THERETO FROM THE 2023 AND/OR 2024 FUNDING YEAR OF THE STATE CDBG PROGRAM.**

## **ADJOURNMENT**

Adjourn to March 19, 2024 at 4:30 P.M. in the Oroville City Council Chambers.

*Accommodating Those Individuals with Special Needs* – In compliance with the Americans with Disabilities Act, the City of Oroville encourages those with disabilities to participate fully in the public meeting process. If you have a special need in order to allow you to attend or participate in our public meetings, please contact the City Clerk at (530) 538-2535, well in advance of the regular meeting you wish to attend, so that we may make every reasonable effort to accommodate you. Documents distributed for public session items, less than 72 hours prior to meeting, are available for public inspection at City Hall, 1735 Montgomery Street, Oroville, California.

*Recordings* - All meetings are recorded and broadcast live on [cityoforoville.org](http://cityoforoville.org) and YouTube.



## CITY OF OROVILLE STAFF REPORT

**TO: MAYOR PITTMAN AND COUNCIL MEMBERS**

**FROM: AMY BERGSTRAND, DIRECTOR  
BUSINESS ASSISTANCE/HOUSING DEVELOPMENT**

**RE: 2023 COMMUNITY DEVELOPMENT BLOCK GRANT APPLICATION**

**DATE: MARCH 14, 2024**

### SUMMARY

The Council will approve the submittal of 2023 Community Development Block Grant (CDBG) Application under Amendment #1.

### DISCUSSION

On January 31, 2024, the Department of Housing and Community Development (HCD) announced the release of an amendment to the Community Development Block Grant (CDBG) Program 2023 Notice of Funding Availability (NOFA) issued on September 29, 2023. The original NOFA was for approximately \$19 million in federal funds for the CDBG waitlisted Over-the Counter projects from the 2019-20 CDBG NOFA. This amendment #1 makes available approximately another \$19 million for Housing, Community Development, and Economic Development Projects in an Over-the Counter process. No programs are allowed.

#### Eligible Projects:

- Only shovel-ready projects are eligible.
- Each jurisdiction can submit one (1) application for a total of \$3.3 Million.
- OTC applications include the following:
  - Public Facilities,
  - Infrastructure Projects (includes the purchase of fire equipment),
  - Economic Development Projects,
  - Housing Projects.

#### Eligible Projects must meet one of the three national objectives:

1. Benefit to LMI persons,
2. Aid in the prevention or elimination of slums and blight,
3. Meet certain urgent community need.

Funding for this NOFA is available to the state from the United States Department of Housing and Urban Development (HUD), pursuant to the Housing and Community Development Act of 1974, as amended, and 24 Code of Federal Regulation (CFR) Part 570 Subpart I, "State Community Development Block Program." These regulations require the state to make funds available to the state's non-entitlement Units of General Local Government (UGLGs). Units of Local Government are defined by HUD as political subdivisions of the state, which in California are towns, cities, and counties. Only non-federally recognized tribes can receive funding through applications submitted by non-entitlement UGLG.

On March 12, 2024, staff conducted a public meeting to review the amendment to the 2023 NOFA, receive public comments.

Staff is recommending that the City apply for 2023 CDBG funds up to \$2,750,000 to purchase a Pierce 107' Enforcer Ascendant Quint Aerial Fire Truck, and all costs associated with this purchase (8.25% Sales tax, California Tire Fee, 100% Performance Bond). Staff recommends building in an up to 4% price increase per quarter estimate until the grant award is approved. Grant funding also includes 7% general administration.

**FISCAL IMPACT**

There is no impact to the General Fund.

**RECOMMENDATION**

Adopt Resolution No. xxxx-A RESOLUTION APPROVING AND APPLICATION FOR FUNDING AND THE EXECUTION FROM A GRANT AGREEMENT AND ANY AMENDMENTS THERETO FROM THE 2023 AND/OR 2024 FUNDING YEAR OF THE STATE CDBG PROGRAM.

**ATTACHMENTS**

- Resolution No. xxxx
- Oroville Aerial Proposal package
- Oroville Aerial Configuration



## Resolution of the Governing Body

### RESOLUTION NO. 9233

#### A RESOLUTION APPROVING AN APPLICATION FOR FUNDING AND THE EXECUTION OF A GRANT AGREEMENT AND ANY AMENDMENTS THERETO FROM THE 2023 AND/OR 2024 FUNDING YEAR OF THE STATE CDBG PROGRAM

BE IT RESOLVED by the City Council of the **City** of Oroville as follows:

#### **SECTION 1:**

The City Council has reviewed and hereby approves the submission to the State of California of one or more application(s) in the aggregate amount, not to exceed, of \$2,750,000 for the following CDBG activities, pursuant to the 2023 and 2024 CDBG NOFAs:

#### **List activities and amounts**

<b>Activity (i.e. Public Services, Housing Rehabilitation, Activity Delivery, General Admission)</b>	<b>Dollar Amount Being Requested for the Activity</b>
Purchase Fire Truck	\$2,620,094
General Administration	\$129,906
	\$
	\$
	\$

#### **SECTION 2:**

The **City Council** hereby approves the use of Program Income in an amount not to exceed \$0.00 for the CDBG activities described in Section 1.

#### **SECTION 3:**

The **City Council** acknowledges compliance with all state and federal public participation requirements in the development of its application(s).

#### **SECTION 4:**

The **City Council** hereby authorizes and directs the City Administrator or designee\*, to execute and deliver all applications and act on the **City's** behalf in all matters pertaining to all such applications.

**SECTION 5:**

If an application is approved, the City Administrator or designee\*, is authorized to enter into, execute and deliver the grant agreement (i.e., Standard Agreement) and any and all subsequent amendments thereto with the State of California for the purposes of the grant.

**SECTION 6:**

If an application is approved, the Director of Business Assistance and Housing Development or designee\*, is authorized to sign and submit Funds Requests and all required reporting forms and other documentation as may be required by the State of California from time to time in connection with the grant.

PASSED AND ADOPTED at a special meeting of the City Council of the **City** of Oroville held on 3/14/2024 by the following vote:

AYES: Enter # of votes or names  
NOES: Enter # of votes or names

ABSENT: Enter # absentees or names  
ABSTAIN: Enter # of abstains or names

David Pittman, Mayor  
City Council

**STATE OF CALIFORNIA**  
**City** of City of Oroville

I, Kayla Reaster, Assistant, **City** Clerk of the **City** of Oroville, State of California, hereby certify the above and foregoing to be a full, true and correct copy of a resolution adopted by said City Council on this 19th day of March, 2024 and that said resolution has not been amended, modified, repealed, or rescinded since its date of adoption and is in full force and effect as of the date hereof.

Kayla Reaster, Assistant, **City** Clerk of the **City** of Oroville,  
State of California

By: Kayla Reaster, Assistant City Clerk



# GOLDEN STATE

FIRE APPARATUS

PREPARED ESPECIALLY FOR:

## OROVILLE FIRE DEPARTMENT

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One (1) Pierce Manufacturing, Inc.  
107' Enforcer Ascendant Quint Aerial



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    - Turning Radius Report
- 4** Product Warranties (Exhibit C)
- 5** Dealer Supplied Products and/or Services (Exhibit D)

# 1 PRODUCT PROPOSAL

# OPTION A

## 100% PRE-PAYMENT

This will be the price of the Product(s) contingent upon the Customer paying the Grand Total Purchase Price to GSFA within thirty (30) calendar days of the Executed Date pursuant to the Payment Terms

IF YOU ELECT THIS OPTION,  
IT RESULTS IN A SAVINGS OF  
**(\$248,387.12) OFF**  
OF THE GRAND TOTAL OF OPTION B

*Please note this discount is also available contingent upon a Third Party (Leasing Company) paying 100% of the Grand Total Purchase Price on behalf of the Customer to GSFA within thirty (30) calendar days of the Executed Date pursuant to the Payment Terms*

## PRODUCT PROPOSAL FOR:

### Oroville Fire Department

2055 W. Lincoln Street  
Oroville, CA 95966

### Sales Consultant

Brad Hansen  
[brad@goldenstatefire.com](mailto:brad@goldenstatefire.com)  
Mobile: (916) 869-6072

SUBMITTED DATE	EXPIRATION DATE	GSFA PROPOSAL #	MANUFACTURER BID #	MANUFACTURER	CONSORTIUM
02/26/2024	04/11/2024	10226-24A	790	Pierce Manufacturing Inc.	Sourcewell #113021-PMI, ID #236, Member #98661

Golden State Fire Apparatus, Inc. (“GSFA”) is pleased to provide this proposal for the fire apparatus(es) and equipment identified below (the “**Product**”) to OROVILLE FIRE DEPARTMENT (“**Customer**”) for consideration. This proposal (this “**Product Proposal**”) includes the following exhibits attached hereto: the Standard Terms and Conditions attached as Exhibit A (the “**Terms and Conditions**”); the Product Specifications attached as Exhibit B (the “**Specifications**”); the Product Warranties attached as Exhibit C; and the Dealer Supplied Products and/or Services attached as Exhibit D (the “**Dealer Supplied Products/Services List**”) (all of the foregoing, collectively, the “**Agreement**”). Through its signature below or other Acceptance (as defined on page 2), Customer acknowledges having received and read, and agrees to be bound by, the Agreement. The Agreement shall be effective as of the latest date appearing in the signature blocks below (the “**Executed Date**”).

ITEM	PRODUCT DESCRIPTION	UNIT PRICE
<b>A</b>	One (1) Pierce Manufacturing, Inc. 107' Enforcer Ascendant Quint Aerial	1,947,202.95
<b>B</b>	<i>Discount for Sourcewell Consortium Purchase</i>	<i>(20,218.38)</i>
<b>C</b>	<i>Discount for 100% Payment at Time of Order (the “Prepayment Discount”)</i>	<i>(228,908.19)</i>
<b>D</b>	SUBTOTAL	1,698,076.38
<b>E</b>	8.25% State Sales Tax	140,091.30
<b>F</b>	California Tire Fee	10.50
<b>G</b>	100% Performance Bond	4,504.00
<b>H</b>	<b>GRAND TOTAL PURCHASE PRICE</b>	<b>1,842,682.18</b>

**PAYMENT TERMS** – Customer shall pay the total purchase price set forth directly above (the “**Grand Total Purchase Price**”) to GSFA within thirty (30) calendar days of the Executed Date. If payment of the Grand Total Purchase Price is late, a late fee as specified in section 6 of the Terms and Conditions may be applied, and the Prepayment Discount may be adjusted, and the Grand Total Purchase Price increased in accordance with section 2.c of the Terms and Conditions. Customer shall pay any balance due as a result of Change Orders as described in the Terms and Conditions.

**MANUFACTURER** – Customer acknowledges that GSFA is not an agent of the Product manufacturer identified above (“**Manufacturer**”) and is not capable of binding Manufacturer. Within five (5) business days of the Executed Date, GSFA shall submit an order form to the Manufacturer for the Product. GSFA’s further performance under the Agreement is contingent upon Manufacturer’s acceptance of such order form at the price and on the terms GSFA believed to be available when submitting this

Product Proposal to Customer. If Manufacturer rejects such order as submitted or fails to respond to GSFA within a reasonable amount of time, GSFA shall notify Customer in writing, and unless GSFA and Customer otherwise agree in writing, the Agreement shall then terminate and have no further force or effect.

**PRODUCT COMPLETION** – The Product shall be ready for final inspection by Customer at the manufacturing facility within approximately **39.5 to 42.5 MONTHS** after the Executed Date. The foregoing estimate is provided as a good faith approximation as of the date of submission of this Product Proposal and is subject to the Terms and Conditions.

**PREDELIVERY SERVICE** – If applicable, after transportation from the manufacturing facility and prior to final delivery or pick up, the Product shall receive those additional Products and/or services identified on the Dealer Supplied Products/Services List. It is estimated that such a service will add approximately **0.5 to 1.5 MONTH(S)** to the above Product completion estimate. The foregoing estimate is provided as a good faith approximation as of the date of submission of this Product Proposal and is subject to the Terms and Conditions.

**PROPOSAL EXPIRATION** – This Product Proposal supersedes any previous proposal(s) presented to Customer by GSFA and its employees and may be accepted by Customer on or before the Expiration Date identified above. Unless accepted by the Expiration Date, GSFA reserves the right to withdraw this Product Proposal or to alter its terms (including by providing updated Product pricing) prior to an order being accepted.

**PURCHASE ORDER** – Any PO shall be made out to: *Golden State Fire Apparatus, Inc. – 7400 Reese Road – Sacramento, CA 95828.*

**ACCEPTANCE** – ACCEPTANCE OF THIS PROPOSAL CREATES AN ENFORCEABLE BINDING AGREEMENT BETWEEN GSFA AND CUSTOMER. “ACCEPTANCE” MEANS THAT THE CUSTOMER DELIVERS TO GSFA: (A) A SIGNED COPY OF THIS PRODUCT PROPOSAL, OR (B) A SIGNED COPY OF A PURCHASE ORDER INCORPORATING THE AGREEMENT IN ITS ENTIRETY. ANY ADDITIONAL OR DIFFERENT TERMS, WHETHER CONTAINED IN CUSTOMER’S FORMS OR OTHERWISE PRESENTED BY CUSTOMER AT ANY TIME, ARE HEREBY REJECTED AND OF NO EFFECT UNLESS APPROVED IN WRITING SIGNED BY GSFA.

**COUNTERPARTS** - This Product Proposal may be executed in multiple counterparts, each of which shall be deemed an original (including copies sent to a party by electronic transmission) as against the party signing such counterpart, but which together shall constitute one and the same instrument. A signed copy of this Product Proposal delivered by facsimile, email or other means of electronic transmission will be deemed to have the same legal effect as delivery of an original signed copy of this Product Proposal. If this Product Proposal is returned to GSFA with the signature of Customer’s authorized representative but without an attestation or co-signers signature, then absent Customer’s written notice to the contrary, GSFA shall be entitled to rely on such single signature as sufficient evidence of the signatory’s authority to execute the Agreement and bind Customer thereby.

**INTENDING TO CREATE A BINDING AGREEMENT**, Customer and GSFA have each caused this Product Proposal dated 02/26/2024, GSFA Proposal Number 10226-24A to be executed by their duly authorized representatives effective as of the Executed Date.

**ACCEPTED AND AGREED TO BY CUSTOMER**

\_\_\_\_\_  
Signature of Authorized Customer Representative

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**ACCEPTED AND AGREED TO BY GSFA**

\_\_\_\_\_  
Signature of Authorized GSFA Representative

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



# OPTION B

## PAYMENT AT TIME OF DELIVERY OR PICKUP

This will be the price of the Product(s) contingent upon the Customer paying the Grand Total Purchase Price to GSFA at time of delivery or pickup pursuant to the Payment Terms

## PRODUCT PROPOSAL FOR:

### Oroville Fire Department

2055 W. Lincoln Street  
Oroville, CA 95966

### Sales Consultant

Brad Hansen  
[brad@goldenstatefire.com](mailto:brad@goldenstatefire.com)  
Mobile: (916) 869-6072

SUBMITTED DATE	EXPIRATION DATE	GSFA PROPOSAL #	MANUFACTURER BID #	MANUFACTURER	CONSORTIUM
02/26/2024	04/11/2024	10226-24B	790	Pierce Manufacturing Inc.	Sourcewell #113021-PMI, ID #236, Member #98661

Golden State Fire Apparatus, Inc. (“GSFA”) is pleased to provide this proposal for the fire apparatus(es) and equipment identified below (the “**Product**”) to OROVILLE FIRE DEPARTMENT (“**Customer**”) for consideration. This proposal (this “**Product Proposal**”) includes the following exhibits attached hereto: the Standard Terms and Conditions attached as Exhibit A (the “**Terms and Conditions**”); the Product Specifications attached as Exhibit B (the “**Specifications**”); the Product Warranties attached as Exhibit C; and the Dealer Supplied Products and/or Services attached as Exhibit D (the “**Dealer Supplied Products/Services List**”) (all of the foregoing, collectively, the “**Agreement**”). Through its signature below or other Acceptance (as defined on page 2), Customer acknowledges having received and read, and agrees to be bound by, the Agreement. The Agreement shall be effective as of the latest date appearing in the signature blocks below (the “**Executed Date**”).

ITEM	PRODUCT DESCRIPTION	UNIT PRICE
<b>A</b>	One (1) Pierce Manufacturing, Inc. 107' Enforcer Ascendant Quint Aerial	1,947,202.95
<b>B</b>	<i>Discount for Sourcewell Consortium Purchase</i>	<i>(20,218.38)</i>
<b>C</b>	SUBTOTAL	1,926,984.57
<b>D</b>	8.25% State Sales Tax	158,976.23
<b>E</b>	California Tire Fee	10.50
<b>F</b>	100% Performance Bond	5,098.00
<b>G</b>	<b>GRAND TOTAL PURCHASE PRICE</b>	<b>2,091,069.30</b>

**PAYMENT TERMS** – Customer shall pay the total purchase price set forth directly above (the “**Grand Total Purchase Price**”) to GSFA no later than the time of GSFA’s delivery of the applicable Product to Customer’s address listed above (or Customer’s pick up of such Product at GSFA’s facilities, if approved by GSFA). GSFA shall have no obligation to deliver, or permit pick up of the Product if the Customer does not have full payment ready when the Product is complete and ready to deliver or pick up, as applicable. Customer shall pay any balance due as a result of Change Orders as described in the Terms and Conditions.

**MANUFACTURER** – Customer acknowledges that GSFA is not an agent of the Product manufacturer identified above (“**Manufacturer**”) and is not capable of binding Manufacturer. Within five (5) business days of the Executed Date, GSFA shall submit an order form to the Manufacturer for the Product. GSFA’s further performance under the Agreement is contingent upon Manufacturer’s acceptance of such order form at the price and on the terms GSFA believed to be available when submitting this Product Proposal to Customer. If Manufacturer rejects such order as submitted or fails to respond to GSFA within a reasonable

amount of time, GSFA shall notify Customer in writing, and unless GSFA and Customer otherwise agree in writing, the Agreement shall then terminate and have no further force or effect.

**PRODUCT COMPLETION** – The Product shall be ready for final inspection by Customer at the manufacturing facility within approximately **39.5 to 42.5 MONTHS** after the Executed Date. The foregoing estimate is provided as a good faith approximation as of the date of submission of this Product Proposal and is subject to the Terms and Conditions.

**PREDELIVERY SERVICE** – If applicable, after transportation from the manufacturing facility and prior to final delivery or pick up, the Product shall receive those additional Products and/or services identified on the Dealer Supplied Products/Services List. It is estimated that such a service will add approximately **0.5 to 1.5 MONTH(S)** to the above Product completion estimate. The foregoing estimate is provided as a good faith approximation as of the date of submission of this Product Proposal and is subject to the Terms and Conditions.

**PROPOSAL EXPIRATION** – This Product Proposal supersedes any previous proposal(s) presented to Customer by GSFA and its employees and may be accepted by Customer on or before the Expiration Date identified above. Unless accepted by the Expiration Date, GSFA reserves the right to withdraw this Product Proposal or to alter its terms (including by providing updated Product pricing) prior to an order being accepted.

**PURCHASE ORDER** – Any PO shall be made out to: *Golden State Fire Apparatus, Inc. – 7400 Reese Road – Sacramento, CA 95828.*

**ACCEPTANCE** – ACCEPTANCE OF THIS PROPOSAL CREATES AN ENFORCEABLE BINDING AGREEMENT BETWEEN GSFA AND CUSTOMER. “ACCEPTANCE” MEANS THAT THE CUSTOMER DELIVERS TO GSFA: (A) A SIGNED COPY OF THIS PRODUCT PROPOSAL, OR (B) A SIGNED COPY OF A PURCHASE ORDER INCORPORATING THE AGREEMENT IN ITS ENTIRETY. ANY ADDITIONAL OR DIFFERENT TERMS, WHETHER CONTAINED IN CUSTOMER’S FORMS OR OTHERWISE PRESENTED BY CUSTOMER AT ANY TIME, ARE HEREBY REJECTED AND OF NO EFFECT UNLESS APPROVED IN WRITING SIGNED BY GSFA.

**COUNTERPARTS** - This Product Proposal may be executed in multiple counterparts, each of which shall be deemed an original (including copies sent to a party by electronic transmission) as against the party signing such counterpart, but which together shall constitute one and the same instrument. A signed copy of this Product Proposal delivered by facsimile, email or other means of electronic transmission will be deemed to have the same legal effect as delivery of an original signed copy of this Product Proposal. If this Product Proposal is returned to GSFA with the signature of Customer’s authorized representative but without an attestation or co-signers signature, then absent Customer’s written notice to the contrary, GSFA shall be entitled to rely on such single signature as sufficient evidence of the signatory’s authority to execute the Agreement and bind Customer thereby.

**INTENDING TO CREATE A BINDING AGREEMENT**, Customer and GSFA have each caused this Product Proposal dated 02/26/2024, GSFA Proposal Number 10226-24B to be executed by their duly authorized representatives effective as of the Executed Date.

**ACCEPTED AND AGREED TO BY CUSTOMER**

**ACCEPTED AND AGREED TO BY GSFA**

\_\_\_\_\_  
Signature of Authorized Customer Representative

\_\_\_\_\_  
Signature of Authorized GSFA Representative

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

# 2 STANDARD TERMS AND CONDITIONS

Exhibit "A"

## STANDARD TERMS AND CONDITIONS

### 1. Definitions.

- a. **“Agreement”** has the meaning given in the Product Proposal.
- b. **“Customer”** means the customer identified in the Product Proposal.
- c. **“Dealer Preparation,”** if applicable, means additional product(s) and/or services added by GSFA after Manufacturer’s completion of the Product and prior to delivery, in accordance with the Dealer Supplied Products/Services List.
- d. **“Delivery Date”** means the Product Completion timeframe plus the Predelivery Service timeframe equals the Delivery Date.
- e. **“Dealer Supplied Products/Services List”** means the Dealer Supplied Products and/or Services List attached to the Product Proposal as Exhibit D, which reflects all Dealer Preparation under the Agreement absent a valid Change Order(s).
- f. **“Grand Total Purchase Price”** means the total purchase price for the Product identified in the Product Proposal (subject to any adjustments required or permitted by these Terms and Conditions, including by the execution of a valid Change Order(s)).
- g. **“GSFA”** means Golden State Fire Apparatus, Inc., a California corporation.
- h. **“Manufacturer”** means the person or persons, company, firm, corporation, partnership, or other organization identified in the Product Proposal as responsible for manufacturing the Product.
- i. **“Party”** or **“Parties”** means GSFA and/or Customer, as applicable.
- j. **“Predelivery Service”** means the Products and/or Services that will be provided by GSFA after transportation of the Product(s) from the manufacturing facility and prior to Final Delivery or Pick-Up.
- k. **“Prepayment Discount”** means a discount to the purchase price for the Product granted to Customer in connection with Customer’s advance payment of the Grand Total Purchase Price (or portion thereof, as specified in the Product Proposal).
- l. **“Product”** means the fire apparatus(es) and any associated equipment listed in the Product Proposal and further described in the Specifications.
- m. **“Product Completion”** means the fire apparatus(es) in the Product Proposal and further described in the Specifications being ready for final inspection by Customer at the manufacturing facility.
- n. **“Product Proposal”** means the GSFA proposal executed by Customer to which these Terms and Conditions are attached.
- o. **“Product Warranties”** means the Manufacturer warranties for the Product attached to the Product Proposal as Exhibit C.
- p. **“Specifications”** means the specifications for the Product attached to the Product Proposal as Exhibit B.
- q. **“Terms and Conditions”** means these Standard Terms and Conditions, which are attached to the Product Proposal as Exhibit A.

### 2. Purchase and Payment.

a. Purchase. Customer agrees to purchase the Product at the Grand Total Purchase Price (as such amount may be adjusted in accordance with these Terms and Conditions), pursuant to the payment terms set forth in the Product Proposal. The Grand Total Purchase Price is payable in U.S. dollars.

b. Contingency Reserve Fund. The Grand Total Purchase Price may include an amount to be set aside for the purpose of funding any future costs or financial obligations incurred by Customer under the Product Proposal or any valid Change Order(s) (the **“Contingency Reserve Fund”**). If applicable, the amount of any required Contingency Reserve Fund will be set forth in either the Product Proposal or Exhibit D. The Contingency Reserve Fund may be withdrawn against by Customer or GSFA for the purpose of satisfying Customer’s payment obligations under the initial Product Proposal or any valid Change Order(s) (including, without limitation, a Change Order submitted by GSFA pursuant to Section 8.b). If a Contingency Reserve Fund is required under the Agreement, the amount of such fund is not intended as an estimate of the actual additional costs of contingencies, Change Orders, unforeseen items

or other required work that may be incurred under the Agreement after submission of the Product Proposal to Customer, which amounts Customer acknowledges may exceed the Contingency Reserve Fund amount. The balance of any Contingency Reserve Fund will be credited against Customer's payment obligations, or otherwise returned to Customer within thirty (30) calendar days of delivery of all Products under the Agreement (provided that Customer has paid all amounts owed under the Agreement as of such date).

c. Prepayment Discount. If GSFA has granted Customer a Prepayment Discount, Customer must provide each associated prepayment (each, a "**Prepayment**") within the time frame specified in the Product Proposal in order to receive such discount. Customer's failure to timely make such Prepayment may result in: (i) GSFA's termination of the Agreement; and/or (ii) Customer's loss of the Prepayment Discount for the portion of the Grand Total Purchase Price represented by such outstanding Prepayment and the application of a late fee as set forth in Section 6, in each case in GSFA's sole discretion.

d. State Sales Tax. Customer shall be responsible for the cost of state sales tax associated with, or attributable to, the Product. The taxes stated in the Product Proposal are subject to adjustment for the applicable state sales tax rate in effect at the time of delivery. Therefore, the sales tax set forth on the Product Proposal is only an estimate of such taxes and will be increased or decreased at the time of delivery if a change in the applicable sales tax rate has occurred, in which case Customer shall pay GSFA (or be refunded by GSFA) the difference in the applicable sales tax.

3. Product Completion Date. Within thirty (30) calendar days of the date on which the last required signatory executes the Product Proposal (such date, the "**Executed Date**"), GSFA shall submit to Customer a tentative Product completion date (which may differ from the Product completion estimate contained in the Product Proposal). Due to global supply chain constraints, any Product completion date contained herein, or in the Product Proposal, or otherwise provided to Customer, is a good faith estimate only as of the date provided to Customer, and merely an approximation based on current information available to GSFA and Manufacturer. Customer shall not be entitled to rely on any such estimate, and GSFA shall have no liability to Customer for a failure by GSFA or Manufacturer to meet any such estimate. All Product completion estimates are subject to modification and, if applicable, GSFA will provide updates to such estimates to Customer when available.

4. Stock / Demo Units. Notwithstanding any other provision contained in the Agreement (including Section 12 hereof concerning warranties), any Products constituting stock/demo unit(s) are sold to Customer on an as-is, first-come and first served-basis and GSFA makes no further representation or warranty to any customer with respect to such unit(s). Regardless of the terms of the Product Proposal, GSFA shall only be obligated to sell such stock/demo unit(s) to the first customer to enter into a purchase agreement with GSFA identifying such unit(s), and after the execution by GSFA of such agreement any subsequent purchase agreement (including the Agreement, as applicable) shall have no further force or effect with respect to such unit(s).

5. Multiple Unit Purchase. If the Grand Total Purchase Price includes pricing for multiple Products, the Product price stated in the Product Proposal shall only be valid if the quantity of Products being proposed are purchased at the same time, pursuant to the same Agreement. GSFA shall have no obligation to offer the same price for any Product if purchased by Customer pursuant to a later purchase agreement.

6. Late Fee; Storage Fee. A late fee equal to 0.033% of the outstanding portion of the Grand Total Purchase Price will be charged per calendar day for overdue payments beginning ten (10) calendar days after the payment is due and continuing for the first thirty (30) calendar days thereafter. After such thirty (30) calendar day period, the late fee shall increase to 0.044% per calendar day until payment of the outstanding portion of the Grand Total Purchase Price is received. If Customer is unable to satisfy the delivery requirements hereunder or is unwilling to take delivery of the Product, then GSFA shall be entitled to a storage charge running from the earlier of: (i) the date of delivery agreed to between GSFA and Customer (provided GSFA is willing and able to deliver the Product on such date), or (ii) twenty-one (21) calendar days after GSFA notifies Customer that the Product is available for delivery. The storage charge is equal to: (i) \$175.00 per calendar day per apparatus stored, or (ii) the actual charges incurred by GSFA with a third party for storage of the Product, whichever is greater. Such storage charge shall continue until the actual time

of delivery and Customer's possession of the Product, and any such storage by GSFA or such third party shall be at the sole risk of Customer.

#### 7. Delivery; Inspection and Acceptance.

a. Delivery. Subject to Section 5 hereof, the Product is scheduled to be delivered to the location and within the time period specified in the Product Proposal. Such delivery date is an estimate, and GSFA is, notwithstanding this Section 7.a, not bound to such date unless it otherwise agrees in a separate writing to complete delivery by a date certain. For the avoidance of doubt, GSFA is not responsible for delivery delays caused by or because of actions, omissions or conduct of Customer, the Manufacturer, or their respective employees, affiliates, suppliers, contractors, and carriers. Risk of loss for the Product shall pass to Customer at the point and time of delivery (which shall include an attempted delivery by GSFA which cannot be completed due to any act of Customer). However, title to the Product shall only pass to Customer upon delivery if Customer has then fully paid GSFA all amounts due hereunder (including additional amounts due under any valid Change Order). Absent GSFA's separate written agreement, which it may or may not provide in its sole and absolute discretion, delivery of the Product will not occur before Customer has fully paid all amounts due under the Agreement and provided proof of insurance reasonably satisfactory to GSFA. If GSFA permits Customer to take possession of the Product, Customer may not mount equipment, conduct training, or place the Product into service until all amounts due under the Agreement have been paid. If Customer has ordered multiple Products, GSFA reserves the right to deliver such Products in installments and to separately invoice Customer for such Products.

b. Inspection and Acceptance. Upon delivery, Customer shall have ten (10) calendar days within which to inspect the Product for substantial conformance to the Specifications, and in the event of substantial non-conformance to the Specifications to furnish GSFA with written notice sufficient to permit GSFA to evaluate such non-conformance ("**Notice of Nonconformance to Specifications**"). Contingent upon part availability and Customer's cooperation, any Product not in substantial conformance to material Specifications shall be remedied by GSFA (by repair or replacement, at GSFA's election) within thirty (30) calendar days from GSFA's receipt of the Notice of Nonconformance to Specifications. In the event GSFA does not receive a Notice of Nonconformance to Specifications within ten (10) calendar days of delivery, the Product will be deemed to be in conformance with Specifications and accepted by Customer.

#### 8. Changes to Agreement Terms.

a. Change Orders. The Customer may request that GSFA incorporate a change to the Product or the Specifications for the Product, or GSFA may submit changes to the Agreement required or permitted to be made by GSFA (pursuant to Section 8.b or otherwise) by delivering a written Change Order to the other party hereto, which shall include a description of the proposed change sufficient to permit the receiving party to evaluate such change (either, a "**Change Order**"). For any Change Order submitted by Customer, 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 Grand Total Purchase Price resulting from such Change Order, a date on which any increase in the Grand Total Purchase Price must be paid, and an estimate of any effect on production scheduling or delivery resulting from such Change Order. Customer shall have seven (7) calendar 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 countersigns GSFA's Response, Customer shall pay the increase (or be refunded the decrease) in the Grand Total Purchase Price by the date specified in the Response. GSFA may also send Customer a Change Order to account for any changes to the Agreement required or permitted to be made by GSFA (including those changes required pursuant to Section 8.b hereof), and such Change Order shall be effective upon delivery to Customer unless Customer elects to terminate the applicable Product order under the Agreement in accordance with Section 9.

b. Additional Changes.

i. Component Price Volatility; Increases Imposed by Manufacturer. GSFA shall not be responsible for (i) any unforeseen price increase or surcharge enacted by suppliers of major components of the Product (including but not limited to commercial chassis, engine, transmission, and fire pump); or (ii) price increases imposed on GSFA by Manufacturer pursuant to Manufacturer's terms and conditions for sale of the Product (a "**Manufacturer Price Increase**"), after Customer becomes bound by the Agreement. Customer shall be responsible for all amounts arising from any price increases for major components of the Product (including all associated taxes and fees thereon) for the Product or any Manufacturer Price Increases occurring after the execution of the Agreement which increases the cost of the Product to GSFA, and such amounts will be documented on a Change Order adjusting the Grand Total Purchase Price accordingly. Customer shall pay any such price increase prior to Product delivery. A Manufacturer Price Increase may include, but shall not be limited to, an increase in Product price resulting from an increase in the Producer Price Index of Components for Manufacturing (see [www.bls.gov](http://www.bls.gov) Series ID: WPUID6112) in excess of a compounded annual growth rate of five percent (5%), as measured between the month Manufacturer accepts the applicable Product order and the month that is fourteen (14) months prior to the then-current estimated Product completion date (the foregoing, a "**PPI-Based Price Increase**"). If, upon Customer's receipt of a Change Order reflecting a PPI-Based Price Increase, Customer elects to terminate the applicable Product Order in accordance with Section 8.b.iii rather than pay such increase, then in lieu of the cancellation fees described in Section 9.a hereof GSFA shall be entitled to recover and Customer shall pay GSFA's actual non-reimbursable costs incurred in connection with the Product order through the date of Customer's termination of such Product order.

ii. New Legal Standards. In the event the Product design, materials or specifications require an alteration arising from new regulations issued by any governmental entity or trade association, including, but not limited to, the NFPA, DOT, and EPA, and such alteration increases the cost of the Product to GSFA, Customer shall be responsible for changes to the Grand Total Purchase Price arising from such alteration. GSFA shall promptly notify Customer when it becomes aware of any potential or required change in regulations occurring prior to delivery that would impact the Product purchased.

iii. Change Orders. Customer shall execute any Change Order submitted by GSFA documenting any of the changes required or permitted by Sections 8.b.i and 8.b.ii above (which shall, to the extent practicable, itemize any increases in the Grant Total Purchase Price and specify a commercially reasonable date by which Customer must pay such increase), unless Customer instead elects to terminate the applicable Product order under the Agreement within fifteen (15) calendar days of Customer's receipt of such Change Order and in accordance with Section 9. Absent such a termination, failure to execute a Change Order does not alter Customer's obligations under this Section 8.b.

c. Changes in Commercial Specifications. Specifications for all components of the Product manufactured by companies other than the Manufacturer are subject to change without notice. Specifications for such components will be as available at the time of manufacture of the Product. GSFA shall not be liable for any deviations in such specifications arising from a substitution of components or changes in the design of any component by their original manufacturer.

9. Termination.

a. By Customer. Customer may terminate a Product order identified in the Product Proposal or a Change Order by providing written notice to GSFA in accordance with Section 16 hereof. If Customer elects to terminate a Product order, Customer shall pay GSFA a cancellation fee as follows: (a) after the Product order is accepted and entered by GSFA, 10% of the portion of the Grand Total Purchase Price applicable to such Product (including all associated taxes, fees and costs) (such amount, the "**Product Purchase Price**"); (b) after completion of the pre-construction phase of the order process, 20% of the Product Purchase Price; and (c) after the requisition of any materials or commencement of any manufacturing or assembly of the Product by either GSFA or Manufacturer but before substantial completion of such Product, 50% of the Product Purchase Price. Customer shall not be permitted to terminate a Product order after substantial completion of manufacturing and assembly of such Product (excluding



any Dealer Preparation or other pre-delivery services or untypical Product customization, if applicable). Notwithstanding the foregoing, if the applicable tier of cancellation fee is not sufficient to cover all actual costs and fees incurred by GSFA with Manufacturer in connection with Customer's termination of the Product order ("**Manufacturer Termination Fees**"), then in addition to such cancellation fee Customer shall pay the balance of all Manufacturer Termination Fees. If Customer received a Prepayment Discount, such discount shall not be considered for the purpose of calculating the above cancellation fee. The tier of cancellation fee applicable to any cancellation, as well as the determination of whether a Product has reached substantial completion, shall be in the sole and absolute discretion of GSFA. Customer may request a fee waiver, and GSFA, in its sole discretion, may agree to waive and/or adjust such fee. GSFA will return the balance of the Grand Total Purchase Price or Product Purchase Price, as applicable, within thirty (30) calendar days of the effective date of the cancellation of the Product order or termination of the Agreement.

Customer may terminate the Agreement for an Event of Default by GSFA after providing GSFA with written notice in accordance with Section 16 (which notice shall describe with reasonably particularity the Event of Default justifying such termination) if such Event of Default remains uncured (if capable of cure) thirty (30) days following GSFA's receipt of such notice; provided, however, that the foregoing cure period shall continue if and for so long as GSFA has commenced and is continuing to undertake commercially reasonable efforts to cure such Event of Default as promptly as reasonably practicable.

b. By GSFA. GSFA may terminate the Agreement for an Event of Default by Customer after providing Customer with written notice in accordance with Section 16 (which notice shall describe with reasonably particularity the Event of Default justifying such termination) if such Event of Default remains uncured (if capable of cure) thirty (30) days following Customer's receipt of such notice; provided, however, that the foregoing cure period shall continue if and for so long as Customer has commenced and is continuing to undertake commercially reasonable efforts to cure such Event of Default as promptly as reasonably practicable. Notwithstanding the foregoing, GSFA may terminate the Agreement effective immediately upon written notice to Customer for Customer's failure to pay any amount owed under the Agreement when due.

Notwithstanding any other provision of this Agreement, if Customer terminates a Product order in accordance with Section 9.a above, GSFA may elect to instead terminate the Agreement upon notice to Customer in accordance with Section 16 hereof. If GSFA terminates the Agreement in accordance with this Section 9.b, Customer shall pay the applicable tier of cancellation fee for all Products pursuant to Section 9.a above as if Customer had elected to terminate each applicable Product order.

c. Based on Discontinuation or Cancellation by Manufacturer. In the event that Manufacturer cancels a Product order (provided that such cancellation is not the result of an act by Customer in violation of the Agreement) or discontinues the manufacture of a Product prior to its completion and delivery: (i) if such Product is the only Product contemplated under the Agreement, then the Agreement shall terminate; or (ii) if additional Products are contemplated under the Agreement, then only the Product order for the applicable cancelled or discontinued Product shall be terminated. Such Agreement termination or Product termination, as applicable, shall be effective upon GSFA's written notice to Customer of such cancellation or discontinuance in accordance with Section 16 hereof. GSFA's only obligation to Customer in such event shall be the return of any Prepayment paid by Customer for the cancelled or discontinued Product. For the avoidance of doubt, the cancellation fees contemplated in Section 9.a hereof shall not apply in the event of a termination pursuant to this Section 9.c.

10. Customer's Obligations. Customer shall provide its timely and best efforts to cooperate with GSFA and Manufacturer during the Product manufacturing process. Reasonable and timely cooperation includes, without limitation, Customer's providing timely information in response to any requests from Manufacturer or GSFA and the participation of Customer's authorized representatives in traveling to Manufacturer's facility for inspections and approval of the Product, including a final approval before the Product leaves Manufacturer's facility.

11. Representations and Warranties. Customer hereby represents and warrants to GSFA as of the Executed Date that the execution of the Agreement and the purchase of the Product(s) and performance of the other obligations

of Customer under the Agreement have been approved by Customer in accordance with applicable general laws and, as applicable, Customer's charter, ordinances, purchasing policies, and other governing documents, and executed by the appropriate Customer employees, officials, and/or representatives, and funding for Customer's performance of its obligations under the Agreement has been duly budgeted and appropriated by Customer.

12. Standard Warranty. All applicable Manufacturer warranties are contained in the Product Warranties. Any additional warranties must be expressly approved in a writing signed by GSFA, and Customer acknowledges and agrees that Manufacturer will not be liable for any such additional warranties.

a. Disclaimer. OTHER THAN AS EXPRESSLY SET FORTH IN THE AGREEMENT, GSFA, ITS AFFILIATES, AND THEIR RESPECTIVE OFFICERS, DIRECTORS, EMPLOYEES, SHAREHOLDERS, AGENTS, OR REPRESENTATIVES, DO NOT MAKE ANY EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE PRODUCT (WHETHER RELATING TO THE CONDITION OR QUALITY OF THE PRODUCT, OR OTHERWISE) PROVIDED HEREUNDER OR OTHERWISE REGARDING THE AGREEMENT (INCLUDING, WITHOUT LIMITATION, WITH RESPECT TO ANY APPLICABLE DEALER PREPARATION), WHETHER ORAL OR WRITTEN, EXPRESS, IMPLIED OR STATUTORY. WITHOUT LIMITING THE FOREGOING, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, THE IMPLIED WARRANTY AGAINST INFRINGEMENT, THE IMPLIED WARRANTY OR CONDITION OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE ARE EXPRESSLY EXCLUDED AND DISCLAIMED. STATEMENTS MADE BY SALES CONSULTANTS OR IN PROMOTIONAL MATERIALS DO NOT CONSTITUTE WARRANTIES.

b. Exclusions of Incidental and Consequential Damages. In no event shall GSFA be liable for consequential, incidental, or punitive damages incurred by Customer in connection with any matter arising out of or relating to the Agreement, or the breach thereof, even if GSFA has been advised of the possibility of such damages, and regardless of whether such damages arise out of breach of warranty, the Agreement, indemnity, whether resulting from non-delivery or from GSFA's own negligence, or otherwise, except and solely to the extent such damages arise from the gross negligence or willful misconduct of GSFA.

13. Default. The occurrence of one or more of the following events (each, an "Event of Default") shall constitute a default under the Agreement: (a) Customer's failure to pay any amounts due or to perform any of its obligations under the Agreement; (b) GSFA's failure to perform any of its obligations under the Agreement; (c) either Party becoming insolvent or becoming subject to bankruptcy or insolvency proceedings; (d) any representation made by either Party under the Agreement which is false in any material respect; (e) any action by Customer to dissolve, merge, consolidate or transfer a substantial portion of its property to another entity during the term of the Agreement; (f) any other material breach of the terms of the Agreement by a Party; or (g) a default or breach by Customer under any other agreement with GSFA or its affiliates.

14. Indemnification of GSFA. Customer shall indemnify, defend, and hold harmless GSFA, its agents, servants, successors and assigns from and against all losses, damages, injuries, claims, demands and expenses, including attorneys' fees and other legal expenses, of whatever nature ("**Damages**"), to the extent Damages arise out of or in connection with: (i) Customer's breach of the Agreement, or (ii) Customer's use, storage, or operation of the Product following delivery, regardless of where, how, and by whom operated (excluding any negligent operation by GSFA). The indemnification and assumptions of liability and obligation herein provided shall continue in full force and effect notwithstanding the termination of the Agreement, whether by expiration of time, by operation of law or otherwise. This provision is not intended to and shall not constitute the exclusive remedy of the Parties under the Agreement; the Parties may seek indemnity from one another under other legal principles, whether based in equity or law, so long as they do not nullify or cancel the effects of this paragraph.

15. Force Majeure. GSFA shall not be responsible nor deemed to be in default of any provision of the Agreement on account of delays in performance due to causes which are beyond GSFA's or Manufacturer's control and which make GSFA's performance impracticable, including but not limited to wars, insurrections, strikes or labor unrest, riots, fires, storms, floods, other acts of nature, explosions, earthquakes, accidents, any act of federal, state or local government, failure or delays in transportation, inability to obtain necessary labor, supplies or manufacturing facilities, supply chain issues, 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, disease, pandemics or epidemics, quarantine restrictions, failure of vendors (due to causes similar to those within the scope of this clause) to perform their agreements or labor troubles causing cessation, slowdown, or interruption of work.

16. Notice. Any notices, requests, consents, claims, demands, waivers and other communications required or permitted to be given hereunder must be given in writing at the address of each Party set forth below, or to such other address as either Party may substitute by written notice to the other in accordance with this Section 16, by one of the following methods: hand delivery; registered, express, or certified mail, return receipt requested, postage prepaid; or nationally recognized private express courier. All such communications will be deemed to have been given: (i) when delivered by hand (with written confirmation of receipt); (ii) on the third (3<sup>rd</sup>) calendar day after the date mailed, by registered, express or certified mail; or (iii) when delivered by the addressee if sent by a nationally recognized private express courier.

GSFA:

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

CUSTOMER:

To the address listed in the Product Proposal

17. Contradictions. In the event of a conflict between the Agreement and any Change Order, or between Change Orders, the terms of the latest executed Change Order shall control.

18. Manufacturer's Statement of Origin. It is agreed that the manufacturer's statement of origin ("**MSO**") for the Product covered by the Agreement, if applicable, shall be retained and remain in the possession of GSFA per California Department of Vehicles (DMV) directives. Notwithstanding the foregoing, GSFA shall provide Customer with the original MSO if the Customer is self-registering, and Customer shall comply with all good-faith Process of Duty and other DMV requirements applicable to the Product and retain its own MSO.

19. Assignment. The relationship of the Parties established under the Agreement is that of independent contractors and neither Party is a partner, employee, agent, or joint venturer of or with the other. Neither Party may assign its rights and obligations under the Agreement unless it has obtained the prior written approval of the other Party.

20. Governing Law; Jurisdiction; Disputes. Without regard to any conflict of laws provisions, the Agreement is to be governed by and under the laws of the state of California. Prior to taking any legal action that may and/or can arise out of the Agreement, the Parties shall first attempt mediation with an agreed upon mediator. If the Parties cannot agree upon a mediator within thirty (30) calendar days of the submission of written notice of a dispute in accordance with Section 16 hereof, if any disputed matter remain unresolved within thirty (30) calendar days of the commencement of discussions, or if any party refuses to meet, then either party may submit any remaining disputes concerning and/or claim regarding the Agreement and/or the terms and conditions herein to the Superior Court, County of Sacramento (and the parties expressly consent to exclusive personal jurisdiction and venue before such court).

21. Entire Agreement; Amendments. The Agreement, including the Product Proposal, its exhibits, and all valid Change Orders, is the exclusive agreement between the Parties regarding the subject matter contained herein and therein. No change in, modification of, or revision of the Agreement shall be valid unless in writing and signed by duly authorized representatives of both Parties with authority to sign such amendments to the Agreement.

**END OF STANDARD TERMS AND CONDITIONS**

# 3 PRODUCT SPECIFICATIONS

Exhibit "B"



# Proposal Details Report

**Customer:** City of Oroville  
**Representative** Hansen, Brad  
**Requirements Manager:**  
**Description:** Oroville 107'  
**Chassis:** Enforcer Chassis, Aerials, Tandem Axle, Ascendant/LSL  
**Body:** Aerial, HD Ladder 107' ASL Tandem, Alum Body

**Bid Number:** 790  
**Job Number:**  
**Organization:** Golden State Fire Apparatus, Inc

OptionCode	Type	Option	ProposalText
0766640		Boiler Plates, Aerial 107' ASL	<p>Golden State Fire Apparatus is pleased to submit a proposal to City of Oroville/Cal Fire Contract for a <b>Pierce® 107' Heavy Duty Aerial Ladder</b> per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.</p> <p>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.</p> <p>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.</p> <p>Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.</p> <p>In accordance with the current edition of applicable NFPA standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.</p> <p>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.</p> <p><b>GENERAL DESIGN AND CONSTRUCTION</b></p> <p>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.</p> <p><b>QUALITY AND WORKMANSHIP</b></p> <p>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 an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.</p> <p>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.</p> <p>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.</p> <p>To demonstrate the quality of our products and services, a list of at least five (5) fire departments/municipalities that have purchased vehicles for a second time is provided.</p> <p><b>DELIVERY</b></p> <p>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.</p> <p><b>MANUAL AND SERVICE INFORMATION</b></p> <p>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.</p> <p><b>SAFETY VIDEO</b></p> <p>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.</p> <p><b>PERFORMANCE TESTS</b></p> <p>A road test will be conducted with the apparatus fully loaded and a continuous run of no less</p>

ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 25 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet the current edition of applicable NFPA standards acceleration and braking requirements.

Item 1.

**SERVICE AND WARRANTY SUPPORT**

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

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

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

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

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

**LIABILITY**

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

**INSURANCE PROVIDED BY BIDDER**

**COMMERCIAL GENERAL LIABILITY INSURANCE**

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

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

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

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

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

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

**COMMERCIAL AUTOMOBILE LIABILITY INSURANCE**

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

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

**UMBRELLA/EXCESS LIABILITY INSURANCE**

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

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

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

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

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

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

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

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

**INSURANCE PROVIDED BY MANUFACTURER**

**PRODUCT LIABILITY INSURANCE**

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

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

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

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

**UMBRELLA/EXCESS LIABILITY INSURANCE**

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

limits of umbrella liability insurance:

Each Occurrence: \$25,000,000

Aggregate: \$25,000,000

Item 1.

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	<p><b>SINGLE SOURCE MANUFACTURER</b>  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.</p>
0584456	Manufacture Location, Appleton, Wisconsin	Your apparatus will be manufactured in Appleton, Wisconsin.
0584452	RFP Location: Appleton, Wisconsin	
0588609	Vehicle Destination, US	
0764706	SP BMP Truck- Pre-Approval at Bid - Approved Option will be Required at Booking	
0816491	Comply NFPA 1900 Changes Effective Jan 1, 2024, With Exceptions	<p><b>NFPA 2024 STANDARDS</b>  This unit will comply with the NFPA standards effective January 1, 2024, 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.</p>
0533349	Aerial Fire Apparatus	
0588612	Vehicle Certification, Aerial w/Pump	

**NFPA COMPLIANCY**

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. If the bidder proposes apparatus that differ from NFPA specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

Item 1.

**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*.

0816495

Certification, Vehicle Inspection Program, NFPA 1900

**VEHICLE INSPECTION PROGRAM CERTIFICATION**

To assure the vehicle is built to current NFPA 1900 standards, the apparatus, in its entirety, will be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. The certification includes: 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.

0766110

Consortium, Sourcewell

0537375

Unit of Measure, US Gallons

0030006

Bid Bond Not Requested

**BID BOND NOT REQUESTED**

A bid bond will not be included. If requested, the following will apply:

All bidders will provide a bid bond as security for the bid in the form of a 5 percent bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.



0816571	Performance Bond, 100% with 25% Warranty Bond, 1 Yr, and Payment Bond, PPI Terms	<p><b>PERFORMANCE BOND, 1 YEAR</b></p> <p>The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100% 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> <p>Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.</p> <p>If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts the order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.</p> <p>The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.</p>
0000007	Approval Drawing	<p><b>APPROVAL DRAWING</b></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>
0781461	Electrical Diagrams, Hard, CD or USB Flash Features	<p><b>ELECTRICAL WIRING DIAGRAMS</b></p> <p>There will be electrical wiring diagrams, provided for the model of chassis and body in the following configurations:</p> <ul style="list-style-type: none"> <li>two (2) hard copies of the electrical diagrams provided</li> <li>no CDs of the electrical diagrams provided</li> <li>one (1) USB flash drive with the electrical diagrams provided</li> </ul>
0786875	Enforcer Chassis, Aerials, Tandem Axle, Ascendant/LSL	<p><b>ENFORCER CHASSIS</b></p> <p>The Pierce Enforcer™ is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The chassis will be the manufacturer's first line tilt cab.</p>
0000110	Wheelbase	<p><b>WHEELBASE</b></p> <p>The wheelbase of the vehicle will be 246.5".</p>
0000070	GVW Rating	<p><b>GVW RATING</b></p> <p>The gross vehicle weight rating will be 66,800lbs.</p>
0729280	Frame Rails, 13.38 x 3.50 x .375, Enforcer	<p><b>FRAME</b></p> <p>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.</p>

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0889469	Frame Liner, "C/Inv L" 12.50" x 3.00" x .25", AXT/Vel/Imp/Enf, 56" QVal	<p><b>FRAME REINFORCEMENT</b></p> <p>In addition, a mainframe internal liner will be provided. The liner will be an internal "C" design over the rear axle. It will be heat-treated steel measuring 12.50" x 3.00" x 0.25" through the front portion of the liner, stepping to 9.38" x 3.00" x 0.25" through the rear portion of the liner. Each liner will have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 1,494,042 in-lb. Total rbm at wheelbase center will be 4,391,869 in-lb.</p> <p>The frame liner will be mounted inside of the chassis frame rail and extend the full length of the frame.</p>
0629940	Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Enforcer	<p><b>FRONT NON DRIVE AXLE</b></p> <p>The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 22,800 lb.</p> <p>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.</p> <p>The center cross members and side plates will be constructed out of 80,000-psi yield strength steel.</p> <p>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.</p> <p>There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension.</p> <p>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 zero degrees for optimum tire life.</p> <p>The ball joint bearing will be of low friction design and be maintenance free.</p> <p>Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided.</p> <p>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.</p> <p>The axle will have a turning angle of up to 45 degrees.</p>
0010427	Suspension, Front TAK-4, 22,800 lb, Qtm/AXT/Imp/Vel/Enf/SFR	<p><b>FRONT SUSPENSION</b></p> <p>Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 lb.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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><b>FRONT SHOCK ABSORBERS</b></p> <p>KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.</p>
0000322	Oil Seals, Front Axle	<p><b>FRONT OIL SEALS</b></p> <p>Oil seals with viewing window will be provided on the front axle.</p>
0899438	Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply	<p><b>FRONT TIRES</b></p> <p>Front tires will be Goodyear 425/65R22.50 radials, 20 ply Armor Max MSA, rated for 22,800 lb maximum axle load and 68 mph maximum speed.</p>
0725046	Wheels, Front, 22.50" x 12.25", Steel, Hub Pilot, 24k	<p>The tires will be mounted on 22.50" x 12.25" steel disc type wheels with a ten (10)-stud, 11.25" bolt circle.</p>

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0785450	Axle, Rear, Oshkosh TAK-4 T3, 44,000 lb, Rear Steer, 2 Axle, Enforcer	<p><b>REAR AXLE</b>  The rear axle will be a tandem axle assembly, of the Oshkosh TAK-4® T3, Tight Turning Technology, independent suspension design, with the ability to support a mechanical rear steering system. Tandem rear axles will have a ground rating of 44,000 lb. The rear axles will be designed for specific use of the independent suspension. The rear independent suspension driving axles will be equipped with a carrier reduction of 1.69 to 1.00 with a planetary wheel end reduction of 3.55 to 1.00. Driving torque will be transmitted from the center differential to the planetary wheel drive by means of a half shaft. Oil fills and level checks will be required at the center differential and the planet wheel end locations. An inter-axle differential, which divides torque evenly between axles, will be provided with an indicator light mounted on the cab instrument panel.</p> <p><b>REAR AXLE STEERING</b>  The tandem rear axle assembly will include a mechanical rear steering system. The mechanical rear steering system will be applied to both rear axles. The steering geometry will be designed to minimize tire scrub of the rear tandem axle tires while reducing the overall turning diameter of the apparatus. The mechanical rear steering system will not use electronic controls and will not have a means to be disengaged. Coordinated steering is the only steering mode supported by the mechanical steering system. Rear steering system is actuated by a mechanical means of connecting the front master/slave steering gear system to a rear axle master/slave steering gear system.</p>
0818721	Top Speed of Vehicle, 68 MPH/109 KPH, Non-NFPA 2024	<p><b>TOP SPEED OF VEHICLE</b>  NFPA 1900, 2024 edition requires limits on the top speed of vehicles. NFPA 7.16.1 requires that the maximum top speed of fire apparatus with a GVWR over 33,000 lb will not exceed either 68 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. NFPA 7.16.2 requires that if the combined water tank and foam agent tank on the fire apparatus exceed 1250 gallons or the GVWR of the vehicle is over 50,000 lb, the maximum top speed of the apparatus will not exceed either 60 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. It is the intention of the standard to improve safety by limiting the speed of all apparatus to 68 mph, and tankers or heavy apparatus to 60 mph. By requesting an exception to this requirement, the purchasing authority is consciously choosing to operate their apparatus at speeds above the limits designated as safe speeds by the NFPA Technical Committee on Fire Department Apparatus. The top speed of the apparatus as manufactured exceeds the NFPA requirements. Per fire department specification of a top speed that exceeds NFPA requirements, the apparatus will be non-compliant to NFPA 1900 standards at time of contract execution. The rear tires being specified have a top speed limit of 68 mph / 109 kph from the tire manufacturer.</p>
0639379	Suspen, Rear, Oshkosh TAK-4, Independent, 44,000 lb	<p><b>REAR SUSPENSION</b>  The rear suspension will be an Oshkosh TAK-4® independent type with a minimum ground rating of 44,000 lbs. The independent suspension will be configured with upper and lower control arms with a spring seat for a coil spring mounted to the lower control arm. The spring tower will be integrated into the suspension frame mount. Each control arm has elastomeric bushings at the inner pivot locations with a ball joint bearing at the outer pivot location. All suspension pivot joints will be of a maintenance free design. The rear independent suspension will be provided with steering toe links providing tow adjustments and maintaining wheel control throughout the range of wheel travel. The independent suspension will be designed to provide maximum ride quality when traveling at highway speeds over improved roads or a moderate speeds over secondary road surfaces with minimal transfer of shock and vibration to the apparatus. Each independent suspension will utilize a coil type of spring. The design will allow for removal of the spring without the use of any spring compression. The rear suspension will provide a minimum wheel travel of 10.00", 6.00" jounce and 4.00" of rebound.</p>
0000485	Oil Seals, Rear Axle	<p><b>REAR OIL SEALS</b>  Oil seals will be provided on the rear axle(s).</p>
0614549	Pump, Thru-Pump, Oshkosh TAK-4, T3 Rear Steer, Aerial	
0802654	Tires, Rear, Goodyear, Armor Max MSA, 445/65R22.5, 20 ply, (AWS/IRS), Tandem	<p><b>REAR TIRES</b>  Rear tires will be four (4) Goodyear radials 445/65R22.50, 20 ply all-position Armor Max MSA tread, rated for 49,200 lb maximum axle load and 68 mph maximum speed.</p>
0693622	Wheels, Rear, 22.50" x 13.00", Steel, Hub Pilot, Tandem, AWS/IRS	<p>The tires will be mounted on 22.50" x 13.00" steel disc type wheels with a ten (10) stud, 11.25" bolt circle.</p>
0568081	Tire Balancing, Counteract Beads	<p><b>TIRE BALANCE</b>  All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.</p>

Item 1.

0620569	Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Tandem Axle	<p><b>TIRE PRESSURE MANAGEMENT</b></p> <p>There will be a RealWheels LED AirSecure™ tire alert pressure management system that will monitor each tire's pressure. A sensor will be provided on the valve stem of each a total of 10 tires.</p> <p>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.</p> <p>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.</p>	Item 1.
0801909	Lug Nut, Covers, Chrome	<p><b>CHROME LUG NUT COVERS</b></p> <p>Chrome lug nut covers will be supplied on front and rear wheels.</p>	
0002045	Mud Flap, Front and Rear, Pierce Logo	<p><b>MUD FLAPS</b></p> <p>Mud flaps with a Pierce logo will be installed behind the front and rear wheels.</p>	
0601010	Chocks, Wheel, SAC-44-E, Folding, Aerials	<p><b>WHEEL CHOCKS</b></p> <p>There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.</p>	
0601009	Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal, Aerials	<p><b>Wheel Chock Brackets</b></p> <p>There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted forward of the left side rear tire.</p>	
0821337	ABS Wabco Brake System, Tandem Rear Axle, Tak-4, NFPA 1900	<p><b>ANTI-LOCK BRAKE SYSTEM</b></p> <p>The vehicle will be equipped with a Wabco 4S4M, anti-lock braking system. The ABS will provide a four (4) channel anti-lock braking control on both the front and rear wheels (rear axle of tandems). A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel sensor 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.</p>	
0030185	Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	<p><b>BRAKES</b></p> <p>The service brake system will be full air type.</p> <p>The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.</p> <p>The brake system will be certified, third party inspected, for improved stopping distance.</p>	
0581433	Brakes, Bendix, Cam, Rear, 16.50 x 7.00"	<p>The rear brakes will be Bendix®, Model ES1657D, 16.50" x 7.00" cam operated with automatic slack adjusters.</p>	
0735527	Air Compressor, Brake, Wabco 26.8 CI, Paccar	<p><b>AIR COMPRESSOR, BRAKE SYSTEM</b></p> <p>The air compressor will be a Wabco single piston compressor with a 26.8 CI displacement.</p>	
0637583	Brake Reservoirs, 6,408 Cubic Inch Minimum Capacity, Saber FR/Enforcer	<p><b>BRAKE SYSTEM</b></p> <p>The brake system will include:</p> <ul style="list-style-type: none"> <li>Brake treadle valve</li> <li>Heated automatic moisture ejector on air dryer</li> <li>Total air system capacity of 6,408 cubic inches</li> <li>Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi</li> <li>Spring set parking brake system</li> <li>Parking brake operated by a push-pull style control valve</li> <li>A parking "brake on" indicator light on instrument panel</li> <li>Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, will be provided with an automatic spring brake application at 40 psi</li> <li>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)</li> <li>1/4 turn drain valves on each air tank</li> <li>The air tank will be primed and painted to meet a minimum 750 hour salt spray test.</li> <li>The air tanks will be same as frame color.</li> <li>To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.</li> </ul>	
0790412	Air Dryer, Wabco System Saver 1200 IWT, Heated, SFR/Enf	<p><b>BRAKE SYSTEM AIR DRYER</b></p> <p>The air dryer will be a WABCO System Saver 1200 IWT, with internal wet tank, spin-on coalescing filter cartridge and 100 watt heater.</p>	

0000790	Brake Lines, Nylon	<p><b>BRAKE LINES</b> Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protected loom in the chassis areas that are subject to excessive heat.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; float: right;">Item 1.</div>
0617799	Inlet/Outlet, Air, w/Disconnect Fitting, 1/4 Turn Valve, Location	<p><b>AIR INLET/OUTLET</b> One (1) air inlet/outlet will be installed with the female coupling located DS Step well. 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 1/4 turn 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.</p>
0656908	All Wheel Lock-up, Single Prk Brk Control	<p><b>ALL WHEEL LOCK-UP</b> An all wheel lock-up system will be installed which applies air to the front brakes and uses the spring brake at the rear. Front brakes will apply with the standard parking brake control.</p>
0808515	Engine, Paccar MX, 510HP, 1850 lb-ftW/OBD, EPA 2027, Saber FR/Enforcer	<p><b>ENGINE</b> The chassis will be powered by an electronically controlled engine as described below: Make: Paccar Model: MX Power: 510 hp at 1600rpm Torque: 1850 lb-ft at 1000rpm Governed Speed: 1900 rpm Emissions Certification: EPA 2027 Fuel: Diesel Cylinders: Six (6) Displacement: 13.7L Starter: DP60 Fuel Filters: Dual cartridge style with check valve, 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.</p>
0811409	Not Required, Engine Contingency Adjustment	
0001244	High Idle w/Electronic Engine, Custom	<p><b>HIGH IDLE</b> 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."</p>
0735687	Engine Brake, Fully Integrated, Paccar MX13 Engine	<p><b>ENGINE BRAKE</b> The compression release brake option is a fully integrated MX engine braking system. It utilizes the turbocharger and back pressure valve, but adds in a hydraulically operated compression brake to increase overall retarding power. To maximize the effectiveness of the compression brake the MX engine brake system works in conjunction with the turbocharger and back pressure valve. The driver will be able to turn the engine brake system on/off and have a high, medium and low setting.</p>
0644227	Clutch, Fan, Air Actuated, Saber FR/Enforcer	<p><b>CLUTCH FAN</b> A fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.</p>

0644573	Air Intake, Water & Ember Screen, Saber FR/Enforcer	<p><b>ENGINE AIR INTAKE</b></p> <p>The engine air intake will be located above the engine cooling package. It will draw fresh the front of the apparatus through the radiator grille.</p> <p>The ember separator is designed to prevent road dirt and recirculating hot air from entering the engine.</p> <p>The ember separator will be easily accessible by tilting the cab.</p>
0814375	Exhaust System, Horizontal, Right Side	<p><b>EXHAUST SYSTEM</b></p> <p>The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device. The exhaust system will include an aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipe between the turbo and the aftertreatment device to minimize the transfer of heat to the cab.</p> <p>The exhaust will terminate horizontally ahead of the right side rear wheels and will be flush with the body rub rail. The exhaust pipes will be aluminized steel.</p> <p>There will be an aluminized steel exhaust diffuser reduced to 5.00" in the center to accommodate the fire department's air recovery system with a standard straight tip on the end 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>
0788765	Radiator, Saber FR/Enforcer	<p><b>RADIATOR</b></p> <p>The radiator and the complete cooling system will meet or exceed the current edition of applicable 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 radiator core will consist of aluminum fins, having a serpentine design, brazed to aluminum tubes.</p> <p>The radiator core will have a minimum front area of 1060 square inches.</p> <p>Supply tank will be made of heavy duty glass-reinforced nylon and the return tank will be made of aluminum. Both tanks will be crimped onto the core assembly using header tabs and a compression gasket to complete the radiator core assembly. There will be a full steel frame around the inserts to enhance cooling system durability and reliability.</p> <p>The radiator will be compatible with commercial antifreeze solutions.</p> <p>The radiator assembly will be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain.</p> <p>The radiator will include a de-aeration/expansion 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>Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.</p>
0001090	Cooling Hoses, Rubber	<p><b>COOLANT LINES</b></p> <p>Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by Pierce Manufacturing.</p> <p>Hose clamps will be stainless steel constant torque type to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.</p>
0001125	Fuel Tank, 65 Gallon, Left Side Fill	<p><b>FUEL TANK</b></p> <p>A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.</p> <p>A 0.75" drain plug will be located in a low point of the tank for drainage.</p> <p>A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."</p> <p>A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet.</p> <p>The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p>
0001129	Lines, Fuel	<p>All fuel lines will be provided as recommended by the engine manufacturer.</p>
0889521	DEF Tank, 7.3 Gallon, LS Fill, Under Cab, Paccar, Lift Up Fill Dr, Spring, ENF	<p><b>DIESEL EXHAUST FLUID TANK</b></p> <p>A 7.3 gallon diesel exhaust fluid (DEF) tank will be provided and mounted under the cab on the driver's side.</p> <p>A fill inlet will be provided on the driver's side of the cab. The lift up door will be spring loaded and be painted.</p>
0552793	Not Required, Fuel Priming Pump	
0552712	Not Required, Shutoff Valve, Fuel Line	
0699437	Cooler, Chassis Fuel, Not Req'd.	

Item 1.

0690880	No Selection Required From This Category		<i>Item 1.</i>
0801890	Trans, Allison 6th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/Enf	<b>TRANSMISSION</b> An Allison 6th 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 amber light and buzzer will be installed on the cab instrument panel.	
0512762	Transmission, Shifter, 6-Spd, Push Button, 4500, Imp/Vel/Qtm/DCF/Enf	<b>TRANSMISSION SHIFTER</b> 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	<b>TRANSMISSION COOLER</b> A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.	
0559012	Program, Transmission, Shift To Neutral, With Prk Brk	<b>TRANSMISSION PROGRAM</b> The transmission will shift to neutral when parking brake is set.	
0565656	Fluid, 4000/4500 Series Transmission, TranSynd synthetic, IPOS, Custom	<b>TRANSMISSION FLUID</b> The transmission will be provided with TranSynd heavy duty synthetic transmission fluid.	
0001375	Driveline, Spicer 1810	<b>DRIVELINE</b> 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.	
0734211	Steering, Sheppard M110 w/Tilt, TAK-4, Paccar Pump, w/Cooler, Paccar	<b>STEERING</b> 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 Paccar 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.	
0509229	Steering Wheel, 2 Spoke	<b>STEERING WHEEL</b> The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 2-spoke design.	
0550144	Logo/Emblem, on Horn Button	<b>LOGO AND CUSTOMER DESIGNATION ON HORN BUTTON</b> The steering wheel 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: City The second row of text will be: of The third row of text will be: Oroville	
0603633	Bumper, Non-Extended, Steel, Painted, Saber FR/Enforcer	<b>BUMPER</b> A one (1) 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. The bumper will be metal finished and painted to match the apparatus. A 9.00" formed steel channel will be mounted directly behind bumper for additional strength. <b>Gravel Pan</b> A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face.	
0725516	No Selection Required, No Bumper Tray Selected		
0614646	No Lift & Tow Package, Imp/Vel, AXT, SFR/Enf		

0072306

Tow Eyes, Chrome, Extended Out Front of Bumper

**TOW EYES**

Two (2) chrome tow eyes will be mounted through the front face of the bumper. The inner and outer edges of the tow eyes will have a .25" radius. Tow eyes will be mounted directly to the bumper frame. Cutouts will be provided in the front face of stainless steel bumper to allow tow eyes to extend out the front. The tow eyes will be designed and positioned to allow up to a 9,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus.

Item 1.

0625650

Cab, Enforcer, 7000

**CAB**

The Enforcer cab will be designed specifically for the fire service and manufactured by the chassis builder. 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 a 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 solid A356-T5 aluminum castings. The B-pillar and C-pillar will be constructed from 0.13" wall extrusions. The rear wall will be constructed of two (2) 2.00" x 2.00" outer aluminum extrusions and two (2) 2.00" x 1.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 4.625" x 3.864" x 0.090" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.25" thick corner casting at each of the front corners of the roof assembly. The front of the cab will be constructed of a 0.13" firewall plate, covered with a 0.090" front skin (for a total thickness of 0.22"), and reinforced with a full width x 0.50" thick cross-cab support located just below the windshield and fully welded to the engine tunnel. The cross-cab support will run the full width of the cab and weld to each A-pillar, the 0.13" firewall plate, and the front skin. The cab floors will be constructed of 0.125" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.375" of structural material at the front floor area. The front floor area will also be supported with two (2) triangular 0.30" wall extrusions that also provides the mounting point for the cab lift. This tubing will run from the floor wireway of the cab to the engine tunnel side plates, creating the structure to support the forces created when lifting the cab. The cab will be 96.00" wide (outside door skin to outside door skin) to maintain maximum maneuverability. The centerline of front axle to the rear of the cab will be 70.00" long. The overall height (from the cab roof to the ground) of approximately 99.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight rating, 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 floor to ceiling height inside the crew cab will be 54.50" in the center and outboard positions. The crew cab floor will measure 46.00" from the rear wall to the back side of the rear facing seat risers. The medium block engine tunnel, at the rearward highest point (knee level), will measure 61.50" to the rear wall. The big block engine tunnel will measure 51.50" to the rear wall. 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 cab will be a full tilt cab style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

**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 painted to match the cab roof, and bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.

**FENDER LINERS**

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

**PANORAMIC WINDSHIELD**

A one (1)-piece safety glass windshield will be provided with over 2,775 square inches of clear viewing area. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: outer light, middle safety laminate, and inner light. The outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

**WINDSHIELD WIPERS**

Three (3) electric windshield wipers with washer will be provided that meet FMVSS and SAE requirements. The washer reservoir will be able to be filled without raising the cab.

0891214

Engine Tunnel, X12, MX13, Enforcer w/T3 Rear Axle

**ENGINE TUNNEL**

Engine hood side walls will be constructed of 0.375" aluminum. The top will be constructed of 0.125" aluminum and will be tapered at the top to allow for more driver and passenger elbow room.

The engine hood will be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current edition of applicable NFPA standards.



0887601	Cab Insulation, Enforcer/Saber FR	<p><b>INTERIOR CAB INSULATION</b> The cab will include 1.00" insulation in the ceiling, 1.50" insulation in the side walls, a mirror, 1.00" insulation in the crew cab floor, and 2.00" insulation in the rear wall to maximize acoustical absorption and thermal insulation.</p>	Item 1.
0610508	Rear Wall, Interior, Adjustable Seating, Not Available		
0632103	Rear Wall, Exterior, Cab, Saber FR/Enforcer	<p><b>CAB REAR WALL EXTERIOR COVERING</b> The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p>	
0639727	Cab Lift, Elec/Hyd, Manual Override, Saber FR/Enforcer	<p><b>CAB LIFT</b> A hydraulic cab lift system will be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves. Hydraulic pump will have a manual override for backup in the event of electrical failure. Lift controls will be located on the right side pump panel or front area of the body in a convenient location. The cab will be capable of tilting 43 degrees to accommodate engine maintenance and removal. The cab will be locked down by a 2-point normally closed spring loaded hook type latch that fully engages after the cab has been lowered. The system will be hydraulically actuated to release the normally closed locks when the cab lift control is in the raised position and cab lift system is under pressure. When the cab is completely lowered and system pressure has been relieved, the spring loaded latch mechanisms will return to the normally closed and locked position. The hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position. For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the left side between the chassis and cab frame when the cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.</p> <p><b>Cab Lift Interlock</b> The cab lift 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>	
0695930	Grille, Bright Finished, Front of Cab, Enforcer	<p><b>GRILLE</b> A bright finished aluminum mesh grille screen, inserted behind a bright finished grille surround, will be provided on the front center of the cab.</p>	
0647932	Not Required, Trim, S/S Band, Across Cab Face, AXT/Saber/Enforcer		
0015440	No Chrome Molding, On side of cab		
0521669	Mirrors, Retrac, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex	<p><b>MIRRORS</b> A Retrac, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.</p>	

0648171	Door, Half-Height, Saber FR/Enforcer 4-Door Cab, Level Roof	<p><b>DOORS</b></p> <p>To enhance entry and egress to the cab, the forward cab door openings will be a minimum of 37.50" wide x 63.37" high. The crew cab doors will be located on the sides of the cab and constructed in the same manner as the forward cab doors. The crew cab door openings will be a minimum of 34.30" wide x 63.37" high.</p> <p>The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.093". The exterior door skins will be constructed from 0.090" aluminum. A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.</p> <p>Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.</p> <p>The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.</p> <p>A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.</p> <p>A chrome handle will be provided on the inside of each cab door for ease of entry.</p> <p>A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.</p> <p>The bottom cab step at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.</p>
0655543	Door Panel, Brushed Stainless Steel, Saber/Enforcer 4-Door Cab	<p><b>Door Panels</b></p> <p>The inner cab door panels will be constructed out of brushed stainless steel.</p>
0630636	Controls, Electric Roll-Up Windows, 4dr, 4 Driver Controls, Saber FR/Enforcer	<p><b>ELECTRIC OPERATED CAB DOOR WINDOWS</b></p> <p>All four (4) cab doors will be equipped with electric operated windows with one (1) flush mounted automotive style switch on each door. The driver's door will have four (4) switches, one (1) to control each door window.</p> <p>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.</p>
0633615	Steps, 4-Door Cab, Reduced Bottom Step, Saber FR/Enforcer	<p><b>CAB STEPS</b></p> <p>The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 25.00" wide, and the crew cab steps will be 21.65" wide with an 8.00" minimum depth. The inside cab steps will not exceed 16.50" in height.</p> <p>The vertical surfaces of the step well will be aluminum treadplate.</p>
0770194	Handrail, Exterior, Knurled, Alum, 4-Door Cab	<p><b>CAB EXTERIOR HANDRAILS</b></p> <p>A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.</p>
0892638	Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 6lts	<p><b>STEP LIGHTS</b></p> <p>There will be six (6) white LED step lights with chrome housing installed for cab and crew cab access steps.</p> <p>One (1) light for the left access steps.</p> <p>Two (2) lights for the left side crew cab access steps.</p> <p>Two (2) lights for the right side crew cab access steps.</p> <p>One (1) light for the right side access step.</p> <p>In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>The lights will be activated when the battery switch is on and the adjacent door is opened.</p>
0583698	Fenders, S/S on cab, Extra Wide, Saber/Enf	<p><b>FENDER CROWNS</b></p> <p>Stainless steel fender crowns will be installed at the cab wheel openings.</p>
0637984	Window, Side of C/C, Fixed, Saber FR/Enforcer	<p><b>CREW CAB WINDOWS</b></p> <p>One (1) fixed window with tinted glass will be provided on each side of the cab, to the rear of the front cab door. The windows will be sized to enhance light penetration into the cab interior. The windows will measure 18.70" wide x 23.75" high.</p>
0786279	Window Tint, Crew Cab Door, Right Side, Privacy Dark Gray	<p><b>RIGHT SIDE ROLLUP CREW CAB DOOR WINDOW TINT</b></p> <p>The rollup window in the right side crew cab door will be tinted privacy dark gray.</p>

Item 1.

0786284	Window Tint, Behind Cab Door, Right Side, Privacy Dark Gray	<b>BEHIND RIGHT SIDE CAB DOOR WINDOW TINT</b> The window behind the right side front cab door will be tinted privacy dark gray.
0786290	Window Tint, Crew Cab Door, Left Side, Privacy Dark Gray	<b>LEFT SIDE ROLLUP CREW CAB DOOR WINDOW TINT</b> The rollup window in the left side crew cab door will be tinted privacy dark gray.
0786299	Window Tint, Behind Cab Door, Left Side, Privacy Dark Gray	<b>BEHIND LEFT SIDE CAB DOOR WINDOW TINT</b> The window behind the left side front cab door will be tinted privacy dark gray.
0651515	Window Protector Bars, Knurled, Crew Doors, 2" Above Window Sill Plate	<b>WINDOW PROTECTOR BARS, CREW CAB DOORS</b> A knurled window protector bar will be installed on each crew cab door, 2.00" above the bottom of the window opening. The bar will extend from the front of the crew cab door to the rear of the crew cab door, mounted as close to the door frame as possible.
0644019	Holder, Cup, 4" Diameter x 4" High x 1" Slit on Side, Matting, Alum, Each	<b>CUP HOLDER</b> There will be four (4) cup holder(s) provided. Each cup holder will be 4.00" in diameter x 4.00" high. An approximate 1.00" wide recess in the cup holder will allow it to hold beverage containers with handles. Black rubber matting will be provided on the bottom of each cup holder. The cup holder(s) will be painted to match the cab interior and located TBD, Mount at Final.
0894089	Dash, Heavy Duty Metal, Enforcer	<b>CAB DASH</b> The driver side dash, switch panel located to the right of the driver, and center console will be constructed of metal and painted black. The officer side dash will be a flat top design with an upper beveled edge to provide easy maintenance and will be constructed out of aluminum and painted to match the cab interior. The instrument gauge cluster will be surrounded with a high impact ABS plastic contoured to the same shape of the instrument gauge cluster.
0634206	Mounting Provisions, 1/4" Alum, Full Engine Tunnel, Saber FR/Enforcer	<b>MOUNTING PLATE ON ENGINE TUNNEL</b> Equipment installation provisions will be installed on the engine tunnel. A .25" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel .75" to allow for wire routing below the plate. The mounting surface will be painted to match the cab interior.
0750824	Cab Interior, Vinyl Headliner, Saber FR/Enforcer, CARE	<b>CAB INTERIOR</b> The cab interior will be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service. The engine tunnel will be padded and covered, on the top and sides, with black 36 ounce leather grain vinyl resistant to oil, grease, and mildew. For durability and ease of maintenance, the cab interior side walls will be painted aluminum. The rear wall will be painted aluminum. The headliner will be installed in both forward and rear cab sections. Headliner material will be vinyl. A sound barrier will be part of its composition. Material will be installed on an aluminum sheet and securely fastened to interior cab ceiling. The forward portion of the cab headliner will permit easy access for service of electrical wiring or other maintenance needs. All wiring will be placed in metal raceways. <b>CAB INTERIOR UPHOLSTERY</b> The cab interior upholstery will be 36 oz black vinyl.
0753903	Cab Interior, Paint Color, Saber FR/Enforcer	<b>CAB INTERIOR PAINT</b> The cab interior metal surfaces, excluding the rear heater panels, will be painted black, vinyl texture paint. The rear heater panels will be painted black, vinyl textured paint.
0052100	Floor, Rubber Padded, Cab & Crew Cab, Saber/Enforcer	<b>CAB FLOOR</b> 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.

**DEFROST/AIR CONDITIONING SYSTEM**

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

Item 1.

**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 condenser will be a 59,644 BTU output that meets and exceeds the performance specification will be mounted on the radiator.

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 rear plenum will be covered with a formed plastic cover.

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 rear plenum cover per the following:

Minimum of 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.

The system controller will be located within panel position #13.

**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.

0639675

Sun Visor, Smoked Lexan, AXT,  
Imp/Vel, Saber FR/Enforcer**SUN VISORS**

Two (2) smoked Lexan™ sun visors will be provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.

0622887

Grab Handles, Driver Door Post,  
Officer Door Post Low, Saber  
FR/Enforcer**GRAB HANDLE**

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

0583938

Lights, Engine Compmt, Custom, Auto  
Sw, WIn 3SC0CDCR, 3" LED, Trim**ENGINE COMPARTMENT LIGHTS**

There will be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) will be activated automatically when the cab is raised.

0631830	Fluid Check Access, Saber FR/Enforcer, Arrow XT	<p><b>ACCESS TO ENGINE DIPSTICKS</b>  For access to the engine oil and transmission fluid dipsticks, there will be a door on the e tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the surface. <span style="border: 1px solid black; padding: 2px;">Item 1.</span>  The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling.  The door will have a rubber seal for thermal and acoustic insulation. One (1) flush lift and turn latch will be provided on the access door.</p>
0013560	Map box, 5 bin/30 Deg Slant, AXT, Imp/Vel, SFR/Enf	<p><b>MAP BOX</b>  A map box with five (5) bins, open at the top, will be installed TBD mount at Final with each bin being 12.50" wide x 2.25" high x 12.00" deep. Each bin will slant 30 degrees from horizontal. The map box will be constructed of .125" aluminum and will be painted to match the cab interior.</p>
0583039	Not Required, Side Roll and Frontal Impact Protection	
0622617	Seating Capacity, 6 Seats	<p><b>SEATING CAPACITY</b>  The seating capacity of the vehicle (including tiller cab and belted seat positions in the rescue body) will be six (6).</p>
0632962	Seat, Driver, Bostrom, Sierra, Air Ride, High Back, PRIMARY, SFR/Enf	<p><b>DRIVER SEAT</b>  A H.O. Bostrom, Sierra, air suspension high back seat will be provided in the cab for the driver. For increased convenience, the seat will include a manual control to adjust the horizontal position (5.50" travel). To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 15 degrees back to 45 degrees forward.  The seat will include no additional zip clean covers.  The seat will be furnished with a 3-point, shoulder type seat belt.</p>
0632918	Seat, Officer, Bostrom 450, Fixed, SCBA, PRIMARY, SFR/Enf	<p><b>OFFICER SEAT</b>  A H.O. Bostrom, Tanker 450, SCBA fixed seat will be provided in the cab for the officer. For optimal comfort, the seat will be provided with 17.00" deep cushion.  The seat back will be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" 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 no additional zip clean covers.  The seat will be furnished with a 3-point, shoulder type seat belt.</p>
0620420	Radio Compartment, Below Non-Air Ride Seat, Saber FR/Enforcer	<p><b>RADIO COMPARTMENT</b>  A radio compartment will be provided under the officer's seat.  The inside compartment dimensions will be 16.00" wide x 7.50" high x 15.00" deep, with the back of the compartment angled up to match the cab structure.  A drop-down door with one (1) 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>
0632850	Seat, Rr Fcng C/C, LS Otbrd, Bostrom 450, SCBA, PRIMARY, SFR/Enf	<p><b>REAR FACING DRIVER SIDE OUTBOARD SEAT</b>  There will be one (1) rear facing, HO Bostrom Tanker 450 SCBA seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be provided with 17.00" deep cushion.  The seat back will be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" 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 no additional zip clean covers.  The seat will be furnished with a 3-point, shoulder type seat belt.</p>
0102783	Not Required, Seat, Rr Facing C/C, Center	
0632846	Seat, Rr Fcng C/C, RS Otbrd, Bostrom 450, SCBA, PRIMARY, SFR/Enf	<p><b>REAR FACING PASSENGER SIDE OUTBOARD SEAT</b>  There will be one (1) rear facing, HO Bostrom Tanker 450 SCBA seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat will be provided with 17.00" deep cushion.  The seat back will be an SCBA back style with a 5 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.50" 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 no additional zip clean covers.  The seat will be furnished with a 3-point, shoulder type seat belt.</p>

0632945	Seat, Fwd Fcng C/C, LS Otbrd, Flip Up Cushion, SECONDARY, SFR/Enf	<p><b>FORWARD DRIVING DRIVER SIDE OUTBOARD SEAT</b></p> <p>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. The seat will be furnished with a 3-point, shoulder type seat belt.</p>
0783470	Cabinet, Forward Facing, Center, 42 W x 40 H x 24.75 D, Roll, SFR/Enf	<p><b>FORWARD FACING CENTER CABINET</b></p> <p>A forward facing cabinet will be provided in the crew cab at the center position. The cabinet will be 42.00" wide x 40.00" high x 24.75" deep with one (1) Amdor rollup door with anodized finish, non-locking. The frame to frame opening of the cabinet will be 39.50" wide x 34.75" high. The minimum clear door opening will be 36.75" wide x 28.87" high. The cabinet will include three (3) infinitely adjustable shelves with a 1.25" up-turned lip painted to match the cab interior. The cabinet will include no louvers. The cabinet will be constructed of smooth aluminum, and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the right side of the interior cabinet door opening and one (1) white LED strip light installed on the left side of the interior cabinet door opening. The lighting will be controlled by an automatic door switch.</p>
0632877	Seat, Fwd Fcng C/C, RS Otbrd, Flip Up Cushion, SECONDARY, SFR/Enf	<p><b>FORWARD FACING PASSENGER SIDE OUTBOARD SEAT</b></p> <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. The seat will be furnished with a 3-point, shoulder type seat belt.</p>
0042359	Upholstery, Seats In Cab, All Vinyl, Bostrom, CARE	<p><b>SEAT UPHOLSTERY</b></p> <p>All seat upholstery will be leather grain black vinyl resistant to oil, grease and mildew. The cab will have four (4) seating positions.</p>
0543991	Bracket, Air Bottle, Hands-Free II, Cab Seats	<p><b>AIR BOTTLE HOLDERS</b></p> <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>
0004431	Inserts, Back Rest For Bostrom SCBA Seats	<p><b>BACK REST INSERTS</b></p> <p>Provided with the Bostrom SCBA seats will be back rest inserts which covers the SCBA cavity. The insert covers will be padded and covered with same material as the seat. A total of three (3) inserts covers will be provided.</p>
0603866	Seat Belt, Dual Retractor, ReadyReach, Saber FR/Enforcer	<p><b>SEAT BELTS</b></p> <p>All cab and tiller cab (if applicable) seating positions 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 applicable NFPA and CAN/ULC - S515 standards. The 3-point shoulder type seat belts will include height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. The 3-point shoulder type seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position. The 3-point shoulder type 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. Any flip up seats will include a 3-point shoulder type belts only. To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.</p>
0817557	Helmet Storage, Provided by Fire Department, NFPA 2024	<p><b>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1900, 2024 edition, section 11.1.8.4.1 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>

Item 1.

0647632	Lights, Dome, WIn 60C*EGCS Dual LED 4 Lts	<p><b>CAB DOME LIGHTS</b>  There will be four (4) Whelen, Model 60C*EGCS, 6.00" round dual LED dome lights provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two lights will be installed and located, one (1) on each side of the crew cab. The color of the LED's will be red and white. The white LED's will be controlled by the lens switch and the door switch to activate the white LEDs adjacent to the respective door. The color LED's will be controlled by the lens switch.</p>	Item 1.
0813183	Not Required, Enhanced Software for Cab and Crew Cab Dome Lts		
0816997	Portable Hand Light, Provided by Fire Dept, NFPA 2024	<p><b>PORTABLE HAND LIGHTS PROVIDED BY FIRE DEPARTMENT</b>  The hand lights are not on the apparatus as manufactured. The fire department will provide and mount these hand lights.</p>	
0622803	Cab Instruments, Black Gauges, Black Bezels, Enforcer MUX	<p><b>CAB INSTRUMENTATION</b>  The cab instrument panel include gauges, an LCD display, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the 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, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.</p> <p><b>Gauges</b>  The gauge panel will include the following ten (10) black faced gauges with black bezels to monitor vehicle performance:</p> <p>Voltmeter gauge (volts):  Low volts (11.8 VDC)  Amber caution indicator on the information center with intermittent alarm  Amber caution light on gauge assembly  High volts (15.5 VDC)  Amber caution indicator on the information center with intermittent alarm  Amber caution light on gauge assembly  Very low volts (11.3 VDC)  Red warning indicator on the information center with a steady alarm  Amber caution light on gauge assembly  Very high volts (16.0 VDC)  Red warning indicator on the information center with a steady alarm  Amber caution light on gauge assembly  Engine Tachometer (RPM)  Speedometer MPH (Major Scale), KM/H (Minor Scale)  Fuel level gauge (Empty - Full in fractions):  Low fuel (1/8 full)  Amber caution indicator on the information center with intermittent alarm  Amber caution light on gauge assembly  Very low fuel (1/32 full)  Red caution indicator on the information center with steady alarm  Amber caution light on gauge assembly  Engine Oil pressure Gauge (PSI):  Low oil pressure to activate engine warning lights and alarms  Red caution indicator on the information center with steady alarm  Amber caution light on gauge assembly  Front Air Pressure Gauges (PSI):  Low air pressure to activate warning lights and alarm  Red warning indicator on the information center with a steady alarm  Amber caution light on gauge assembly  Rear Air Pressure Gauges (PSI):  Low air pressure to activate warning lights and alarm  Red warning indicator on the information center with a steady alarm  Amber caution light on gauge assembly  Transmission Oil Temperature Gauge (Fahrenheit):  High transmission oil temperature activates warning lights and alarm  Amber caution indicator on the information center with intermittent alarm  Amber caution light on gauge assembly  Engine Coolant Temperature Gauge (Fahrenheit):  High engine temperature activates an engine warning light and alarms  Amber caution indicator on the information center with intermittent alarm  Amber caution light on gauge assembly  Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):  Low fluid (1/8 full)  Amber indicator light in gauge dial  All gauges will perform prove out at initial power-up to ensure proper performance.</p> <p><b>Indicator Lamps</b>  To promote safety, the following telltale indicator lamps will be located on the instrument panel in clear view of the driver. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols. The following amber telltale lamps will be present:  Low coolant  Trac cntl (traction control) (where applicable)  Check engine  Check trans (check transmission)  Aux brake overheat (Auxiliary brake overheat)  Air rest (air restriction)</p>	

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)  
 Side roll fault (where applicable)  
 Front air bag fault (where applicable)  
 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 three (3) to five (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**

**A system will be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. 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. All switches will have backlit labels for low light applications.**

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

**Panel back lighting intensity control switch: A three (3)-position momentary rocker switch will be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back lighting intensity. Pressing the half or bottom half of the switch several times will allow back lighting intensity to be gradually varied from minimum to maximum intensity level for ease of use.**

**Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will turn off and deactivate vehicle ignition. The second switch position will activate vehicle ignition and will perform prove-out on the telltale indicators and alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with vehicle ignition. The third momentary position will temporarily silence all active cab alarms. An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off position will terminate the alarm silence feature and reset function of cab alarm system.**

**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.**

**Hazard switch will be provided on the instrument panel or on the steering column.**

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

**Turn signal arm: A self-canceling turn signal with high beam headlight controls will be provided.**

**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.**

**High idle engagement switch: A momentary rocker switch with integral indicator lamp will be provided. The switch will activate and deactivate the high idle function. 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.**

**Emergency switching will be controlled by multiple individual warning light switches for various groups or areas of emergency warning lights. An Emergency Master switch provided on the instrument panel that enables or disables all individual warning light switches is included.**

**An additional "Emergency Master" button will be provided on the lower left hand corner of the gauge panel to allow convenient control of the "Emergency Master" system from inside the driver's door when standing on the ground.**

**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 provisions for up to four (4) switch panels in the lower instrument console and up to six (6) switch**



panels in the overhead visor console. All switches have backlit labels for low light conditions.

Item 1.

**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

Roll sensor diagnostic port

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 the following, 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.

0543751 Light, Do Not Move Apparatus

**"DO NOT MOVE APPARATUS" INDICATOR**

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

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,

**DO NOT MOVE TRUCK MESSAGES**

Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages will be displayed (where applicable):

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

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.

0622798 Switching, Cab Instrument Lower Console & Overhead, Rocker MUX, Enforcer

**SWITCH PANELS**

The built-in switch panels will be located in the lower console or overhead console of the cab. The switches will be rocker-type and include an integral indicator light. For quick, visual indication the switch will be illuminated whenever the switch is active. A 2-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed below the switches. The label will allow light to pass through the letters for improved visibility in low light conditions. Switches and light source are integral to the switch panel assembly.

0802940	Wiper Control, 2-Speed with Intermittent, Saber FR/Enforcer	<b>WIPER CONTROL</b> Wiper control will consist of a two (2)-speed windshield wiper control with intermittent fea windshield washer controls. The control will be located above the ignition switch.	Item 1.
0731813	Hour Meter, Aerial, Included in Information Centers, ASL, AAT, ASP	<b>HOURLMETER - AERIAL DEVICE</b> The following aerial hour meter messages will be included in the information centers: Aerial Hours, that keeps track of the time the aerial device is in motion. Aerial PTO Hours, that keeps track of the time the aerial master switch is on and the aerial PTO is engaged.	
0002615	Switch, Aerial 12V Master	<b>AERIAL MASTER</b> There will be a master switch for the aerial operating electrical system provided.	
0770696	Aerial PTO Activated with Aerial Master Sw	<b>AERIAL PTO ACTIVATION</b> The aerial PTO will be activated when the aerial master switch is activated and the interlocks are met.	
0820894	Wiring, Spare, 15 A 12V DC, Batt Dir, 1st NFPA1900	<b>SPARE CIRCUIT</b> 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 15 amps at 12 volts DC. Power and ground will terminate officer side dash area. Termination will be with 15 amp, power point plug with rubber cover. Wires will be sized to 125 percent of the protection. Battery direct loads cannot be Load Managed.	
0821230	Wiring, Spare, 20 A 12V DC, 6 CKT FB, Blue Sea 5025 1st NFPA1900	<b>SPARE CIRCUIT</b> 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 switched 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 (1) one mounted next to engine tunnel aft of Driver seat. . 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.	
0821232	Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 2nd NFPA1900	<b>SPARE CIRCUIT</b> 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 switched 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 (1) one mounted next to engine tunnel aft of Driver seat.. 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.	
0821233	Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 3rd NFPA1900	<b>SPARE CIRCUIT</b> 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 switched 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 (1) one mounted in lower portion of forward facing center cabinet in crew cab area. 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.	

0821260	Wiring, Spare, 20 A 12V DC, 12 Ckt Fuse Block, Blue Sea 5026 1st NFPA1900	<p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:  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 20 amps at 12 volts DC.  Power and ground will terminate Forward wall, when looking into compartment upper rear left corner LS4 with 18" pigtail.  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>
0821261	Wiring, Spare, 20 A 12V DC, 12 Circuit Fuse Block, Blue Sea 5026 2nd NFPA1900	<p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:  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 20 amps at 12 volts DC.  Power and ground will terminate Forward wall, when looking into compartment upper rear right corner RS4 with 18" pigtail.  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>
0821302	Wiring, Spare, 12V DC, USB-A & C Term, Kussmaul 091-264 Cab Batt Dir 1st NFPA1900	<p><b>SPARE CIRCUIT</b></p> <p>There will be four (4) 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 6 amps at 12 volts DC.  Power and ground will terminate in the cab/crewcab (1) in drivers area per IP Layout, (1) two Officer area per IP Layout, (1) each side of Forward Facing Center cabinet in a box with USB outlets facing Firefighter seat.  Termination will be a Kussmaul part number 091-264 switch panel dual USB-A, 18 watt and USB-C, 45 watt SVR, charger socket.  Wires will be sized to 125 percent of the protection.  Battery direct loads cannot be Load Managed</p>
0821329	Wiring, Spare, 10 A 12V DC Batt Dir 1st NFPA1900	<p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features:  The positive wire will be connected directly to the battery power.  The negative wire will be connected to ground.  Wires will be protected to 10 amps at 12 volts DC.  Power and ground will terminate Passenger overhead dash.  Termination will be with heat shrinkable butt splicing.  Wires will be sized to 125 percent of the protection.  Battery direct loads cannot be Load Managed</p>
0764088	Wiring, Spare, 47.5 A 12V DC, Cust Install Radio, 40A Bat Dir, 7.5A Sw & Grnd	<p><b>CUSTOMER SUPPLIED RADIO WIRING</b></p> <p>There will be one (1) 12 volt combination wiring leads of which each will include one (1) direct battery, one (1) master battery switched and one (1) negative for use with radio equipment. Each lead will be 18.00" long and be provided Radio compartment below Officer seat. The leads will be clearly marked in a coil and terminate with butt splices.  A breaker rated for 40 amps will be provided for circuit protection of the direct battery lead with a minimum of 8 gauge wire.  A breaker rated for 7.5 amps will be provided for circuit protection of the master battery switched lead.  The wires will be colored coded as follows:  red for direct battery  yellow for master battery switched  black for ground</p>
0814201	Vehicle Information Center, 7" Color Display, Touchscreen, MUX, CL714	<p><b>INFORMATION CENTER</b></p> <p>An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.  The information center will have the following specifications:  Operate in temperatures from -40 to 158 degrees Fahrenheit  LCD optically bonded to hardened AR glass 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>

Item 1.

### General Screen Design

Where possible, background colors will be used to provide "At a Glance" vehicle information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur:

An amber background/text color will indicate a caution condition

A red background/text color will indicate a warning condition

The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.

A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

### Home/Transit Screen

This screen will display the following:

Vehicle Mitigation (if equipped)

Water Level (if the water level system includes compatible communications to the information center)

Foam Level (if the foam level system includes compatible communications to the information center)

Seat Belt Monitoring Screen

Tire Pressure Monitoring (if equipped)

Digital Speedometer

Active Alarms

### On Scene Screen

This screen will display the following and will be auto activated with pump engaged (if equipped):

Battery Voltage

Fuel

Oil Pressure

Coolant Temperature

RPM

Water Level (if equipped)

Foam Level (if equipped)

Foam Concentration (if equipped)

Water Flow Rate (if equipped)

Water Used (if equipped)

Active Alarms

### Virtual Buttons

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

### Page Screen

The page screen will display the following and allow the user to progress into other screens for further functionality:

Diagnostics

Faults

Listed by order of occurrence

Allows to sort by system

Interlock

Throttle Interlocks

Pump Interlocks (if equipped)

Aerial Interlocks (if equipped)

PTO Interlocks (if equipped)

Load Manager

A list of items to be load managed will be provided. The list will provide a description of the load. The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.

The screen will indicate if a load has been shed (disabled) or not shed.

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

Systems

Command Zone

Module type and ID number

Module Version

Input or output number

Circuit number connected to that input or output

Status of the input or output

Power and Constant Current module diagnostic information

Foam (if equipped)

Pressure Controller (if equipped)

Generator Frequency (if equipped)

Live Data

General Truck Data

Maintenance

Engine oil and filter

Transmission oil and filter

Pump oil (if equipped)

Foam (if equipped)

Aerial (if equipped)

Setup

Clock Setup

Date & Time

12 or 24 hour format

Set time and date

Backlight

Daytime

Night time

Sensitivity

- Unit Selection
- Home Screen
- Virtual Button Setup
- On Scene Screen Setup
- Configure Video Mode
- Set Video Contrast
- Set Video Color
- Set Video Tint
- Do Not Move

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

- Driver Side Cab Door
- Passenger's Side Cab Door
- Driver Side Crew Cab Door
- Passenger's Side Crew Cab Door
- Driver Side Body Doors
- Passenger's Side Body Doors
- Rear Body Door(s)
- Ladder Rack (if applicable)
- Deck Gun (if applicable)
- Light Tower (if applicable)
- Hatch Door (if applicable)
- Stabilizers (if applicable)
- Steps (if applicable)

**Notifications**

View Active Alarms

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

Silence Alarms - All alarms are silenced

Timer Screen

HVAC (if equipped)

Tire Information (if equipped)

Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

0816633

Collision Mitigation, HAAS Alert (R2V), HA7

**COLLISION MITIGATION**

There will be a HAAS Alert®, Model HA7 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA7 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 degrees Celsius to 85 degrees Celsius.

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 HA7 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 HA7 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.

The HA7 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.

0606247	Vehicle Data Recorder w/CZ Display Seat Belt Monitor	<p><b>VEHICLE DATA RECORDER</b>  There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided. <span style="border: 1px solid black; padding: 2px;">Item 1.</span>  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  Internal clock syncs the time and date when a laptop is connected.  <b>Seat Belt Monitoring System</b>  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 &amp; Buckled = Green LED indicator illuminated  Seat Occupied &amp; Unbuckled = Red LED indicator with audible alarm  No Occupant &amp; Buckled = Red LED indicator with audible alarm  No Occupant &amp; 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.</p>
0606226	Signal, Recordable, VDR, Silence Alarm, AXT MUX, DCF, SFR/Enf, Imp/Vel, Qtm	<p><b>Vehicle Data Recordable Input</b>  When the VDR is active, the seat belt monitoring system alarm will be silenced through the standard silence alarm switch. The alarm will chirp in intervals to remind the operator that an alarm is still sounding.</p>
0735006	Intercom, David Clark, 4-Pos, 2-Radio, (D,O,RPTT), 2obC, U3805	<p><b>INTERCOM SYSTEM</b>  There will be a four (4) position David Clark, Model U3800, intercom system with single radio interface capability at the driver and officer positions and remote radio push to talk buttons located (1) DS, (1) Officer per IP Layout. Two (2) crew cab outboard seats will have intercom only capability.  The following components will be provided:  One (1) U3805 Radio Cord Junction Module  Two (2) U3815 Radio interface modules (Driver, Officer)  Two (2) Remote Push To Talk Button Kits  One (1) U3800 Master station (1 Crew)  One (1) U3801 Remote headset intercom station (1 Crew)  One (1) C3820 Power cord  All necessary station cables and connectors</p>
0637058	David Clark Universal Radio Interfaces Included with Single/Dual System	<p><b>RADIO / INTERCOM INTERFACE INCLUDED</b>  All radio interfaced stations will have universal radio interfaces installed. The interface wiring will be routed within the cab to Officer overhead dash area .</p>
0597914	Headset, David Clark, H3442 Under Helmet, Flex Mic	<p><b>UNDER THE HELMET HEADSET</b>  There will be four (4) under the helmet, headset(s) provided Driver, Officer, Both Crew Cab seats. Each David Clark, Model H3442, headset will feature:  M-7A noise canceling electret microphone  Hybrid wire/flex boom assembly, 280° rotating, for perfect microphone placement on left or right side  Dynamic earphone elements  Advanced Undercut Gel Ear Seals for superior comfort  Microphone on/off switch  6 ft. extended coil cord  Adjustable overhead support assembly  Carbon steel nape-band spring, black finish, rotates for left or right side mic positioning  Independently Certified NRR: 23dB</p>
0819255	Hangers For Headsets, NFPA Each, 1900	<p><b>HEADSET HANGERS</b>  There will be four (4) headset hanger(s) installed driver's seat, officer's seat, driver's side outboard rear facing seat and passenger's side outboard rear facing seat. The hanger(s) will meet the current edition of applicable NFPA standards for equipment mounting.</p>

0687904	Antenna Mount, Custom Chassis, Cable Routed to Behind Officer Seat	<p><b>RADIO ANTENNA MOUNT</b></p> <p>There will be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed (2) behind the lightbar on the lower roof on the cab roof with high efficiency, low loss, coaxial cable to behind the officer seat. A weatherproof cap will be installed on the mount.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; float: right;">Item 1.</div>
0816486	Camera, Pierce, LS Mux, RS, R, SD Cameras, CL714	<p><b>VEHICLE CAMERA SYSTEM</b></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>One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal</p> <p>The camera images will be displayed on the left side vehicle information center display. Audio from the microphone on the rear camera will be not provided.</p> <p>The following components will be included:</p> <p>One (1) SV-CW134639CAI SD Camera</p> <p>One (1) CS134404CI Side SD Camera</p> <p>All necessary cables</p>
0814861	Camera, Switcher, Pierce, 4 channel, AHD, CVBS	<p><b>Camera Switcher</b></p> <p>There will be one (1), HMU318 HD Image Processor multiplexer, 4 channel camera video switcher with remote control provided to allow single, dual, triplex, quad, trefoil, Y split and PIP view display modes on the vehicle information center display provided. The switcher will have one (1) CVBS, Composite Video Blanking and Sync, standard Definition video output and one (1) AHD, Analog High Definition video output for High Definition cameras.</p>
0890416	Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT	<p><b>ELECTRICAL POWER CONTROL SYSTEM</b></p> <p>The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.</p> <p>Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.</p> <p>Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.</p> <p><b>Solid-State Control System</b></p> <p>A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules, electronic control modules to include black housings, a power indicator and status indicator located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.</p> <p>The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.</p> <p>For increased reliability and simplified use the control system modules will include the following attributes:</p> <ul style="list-style-type: none"> <li>Green LED indicator light for module power</li> <li>Red LED indicator light for network communication stability status</li> <li>Control system self test at activation and continually throughout vehicle operation</li> <li>No moving parts due to transistor logic</li> <li>Software logic control for NFPA mandated safety interlocks and indicators</li> <li>Integrated electrical system load management without additional components</li> <li>Integrated electrical load sequencing system without additional components</li> <li>Customized control software to the vehicle's configuration</li> <li>Factory and field programmable to accommodate changes to the vehicle's operating parameters</li> </ul> <p>To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:</p> <ul style="list-style-type: none"> <li>Module circuit board will meet SAE J771 specifications</li> <li>Operating temperature from -40 degrees Celsius to +70 degrees Celsius</li> <li>Storage temperature from -40 degrees Celsius to +70 degrees Celsius</li> <li>Vibration to 50g</li> <li>IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)</li> <li>Operating voltage from eight (8) volts to 32 volts DC</li> </ul> <p>The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.</p> <p><b>Circuit Protection and Control Diagram</b></p> <p>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.</p> <p><b>On-Board Electrical System Diagnostics</b></p> <p>The on-board information center will include the following diagnostic information:</p> <ul style="list-style-type: none"> <li>Text description of active warning or caution alarms</li> <li>Simplified warning indicators</li> </ul>

Amber caution indication with intermittent alarm

Red warning indication with steady tone alarm

Advanced diagnostic feature will be provided in this control system. From the Command display or connected wireless device, these features allow the user to monitor the real-time of every input or output on the vehicle. It also allows users logged in as an administrator to force on inputs or outputs to assist the troubleshooting process. Item 1.

#### **TCU 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 communicate through a black WiFi antenna 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 TCU 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 TCU will provide up to 2 Gigabytes of data storage.

The TCU will provide a means to download the TCU information and update software in the device.

#### **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.

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

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

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

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.

0896456

Prognostics, Electrical System

#### **ELECTRICAL SYSTEM PROGNOSTICS**

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

The system will send automatic indications to the Command Zone™ information center and/or wireless enabled devices to proactively alert of upcoming service intervals.

Prognostics will include the following:

Engine oil and filter

Transmission oil and filter



**ELECTRICAL**

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to automotive practices. All wiring will be high temperature crosslink type. Wiring will be run 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 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.

Item 1.

0079212 Batteries, (6) Stryten/Exide Grp 31, 950 CCA each, SAE Posts

**BATTERY SYSTEM**

Six (6) 12 volt, Stryten/Exide, Model 31A950X1W, group 31 batteries that include the following features will be provided:  
 950 CCA, cold cranking amps  
 190 amp reserve capacity  
 High cycle  
 Rating of 5700 CCA at 0 degrees Fahrenheit  
 1140 minutes of reserve capacity  
 SAE Posts  
 Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.  
 The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

0008621 Battery System, Single Start, All Custom Chassis

**BATTERY SYSTEM**

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.  
**MASTER BATTERY SWITCH**  
 There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.  
 An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

0002698 Battery Compartment, Saber/Enforcer

**BATTERY COMPARTMENTS**

Batteries will be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab and bolted directly to the chassis frame. The battery boxes will have reinforced sides. The battery compartments will be constructed of 0.188" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The battery hold-downs will be of a non-corrosive material. All bolts and nuts will be stainless steel. Heavy-duty, 2/0 gauge, color coded battery cables will be provided. Battery terminal connections will be coated with anti-corrosion compound.  
 Battery solenoid terminal connections will be encapsulated with semi-permanent rubberized compound.  
**JUMPER STUDS**  
 One (1) set of battery jumper studs with plastic color-coded covers will be included on the battery compartments.

0814138 Charger, Sngl Sys, IOTA, DSL-75, 75 Amp, TL Plug/Recept

**BATTERY CHARGER**

An IOTA, Model DSL 75, 75 amp battery charger with IQ4 controller will be provided with a twist lock plug.  
 The battery charger will be wired to the AC shoreline inlet through a twist lock AC receptacle adjacent to this battery charger.

0814869 Location, Cab, Charger, Behind Driver Seat

The battery charger will be located in the cab behind the driver seat.

0813791	Panel, Charger Display, Kussmaul, 091-94-12, Batt Dir	<p><b>REMOTE CONTROL PANEL - BATTERY CHARGER</b>  There will be a Kussmaul™, Model 091-94-12 universal display panel included. It will be directly to the chassis batteries.</p>	Item 1.
0814939	Location, Cab, Ind/Remote, Driver's Seat Riser	The battery charger indicator will be located on the driver's seat riser.	
0016857	Shoreline, 20A 120V, Kussmaul Auto Eject, 091-55-20-120, Super	<p><b>AUTO EJECT FOR SHORELINE</b>  There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.  The shoreline inlet(s) will include red weatherproof flip up cover(s).  There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.  The shoreline(s) will be connected to battery charger and 110v receptacles.  There will be a mating connector body supplied with the loose equipment.  There will be a label installed near the inlet(s) that state the following:  Line Voltage  Current Rating (amps)  Phase  Frequency</p>	
0026800	Shoreline Location	The shoreline receptacle will be located on the driver side of cab, above wheel.	
0647728	Alternator, 430 amp, Delco Remy 55SI	<p><b>ALTERNATOR</b>  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>	

**ELECTRONIC LOAD MANAGER**

An electronic load management (ELM) system will be provided that monitors the vehicles 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.

Item 1.

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.

0625953

Light, Directional, WIn 600 Cmb, Cab Crn, Wrp Bzl Out HD Lts, Enf, Sab FR

**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 clear.

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.

0734373	Lights, Clearance/Marker, Side, Truck-Lite 33050Y 2 Lts, Others With Visor Lt	<p><b>CAB CLEARANCE/MARKER/ID LIGHTS</b></p> <p>There will be two (2) Truck-Lite Model 33050Y, lights with amber LEDs, amber lenses, and a chrome wrap around bezel, one (1) on each side of the cab. <span style="border: 1px solid black; padding: 2px;">Item 1.</span></p> <p>There will be two (2) Truck-Lite Model 33050Y, lights with amber LEDs, amber lenses, and a chrome wrap around bezel, one (1) on each side of the cab. Locations:  Two (2) lights installed as front side clearance lights will be installed, one (1) on each side above the cab doors.  The lights will be wired to the running lights of the vehicle.  All other forward facing clearance lights will be included with the visor scene light.</p>
0625210	Lights, Directional, Cab Front Side, Truck-Lite 19036Y LED, AXT/Enf	<p><b>FRONT CAB SIDE CLEARANCE/MARKER LIGHTS</b></p> <p>There will be two (2) Truck-Lite®, Model 19036Y, amber LED lights installed to the outside of the chrome wrap around bezel, one (1) on each side of the cab.  The lights will activate as additional directional lights with the corresponding directional circuit.</p>
0534987	Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts, Aerial	<p><b>REAR CLEARANCE/MARKER/ID LIGHTING</b></p> <p>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</p> <p>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</p> <p>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</p> <p>There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.  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>
0602938	Light, Marker End Outline, Rubber Arm, LED Marker Lamp, Rear Body	<p><b>MARKER LIGHTS</b></p> <p>There will be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens will face the front and the red lens will face the rear of the truck.  These lights will be activated with the running lights of the vehicle.</p>
0804514	Lights, Tail, Wln M62BTT* Red Stop/Tail & M62T* Amber Dir Arw For Hsg	<p><b>REAR FMVSS LIGHTING</b></p> <p>The rear stop/tail and directional lighting included in the rear tail light housing will include the following:  Two (2) Whelen®, Model M62BTT, 4.30" high x 6.70" wide x 1.40" deep brake/tail lights with red LEDs  Two (2) Whelen, Model M62T, 4.30" high x 6.70" wide x 1.40" deep directional lights with amber LEDs. The directional lights will be set to Steady On (Arrow) flash pattern.  The lens color(s) to be clear.</p>
0806466	Lights, Backup, Wln M62BU, LED, For Tail Lt Housing	<p>There will be two (2) Whelen Model M62BU, LED backup lights provided in the tail light housing.</p>
0889577	Bracket, License Plate & Light, P25 LED, Stainless Brkt	<p><b>LICENSE PLATE BRACKET</b></p> <p>One (1) license plate bracket constructed of stainless steel will be provided at the rear of the apparatus.  One (1) white LED light with chrome housing will be provided to illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.</p>
0556842	Bezels, Wln, (2) M6 Chrome Pierce, For mtg (4) Wln M6 lights	<p><b>LIGHTING BEZEL</b></p> <p>There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.</p>

0081564	Alarm, Back-Up Warning, ECCO 505, 87db Constant	<p><b>BACK-UP ALARM</b> An ECCO, Model 505, solid state electronic audible back-up alarm that actuates when the vehicle is shifted into reverse will be provided. The device will sound at 60 pulses per minute at a constant 87db.</p> <div style="border: 1px solid black; padding: 2px; float: right;">Item 1.</div>
0578264	Flash Pattern, California Title13, LED Warning Lights	<p><b>WARNING LIGHT FLASH PATTERN</b> 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>
0626588	Lights, Perimeter Cab, TecNiq T10-LC00-1 15" LED 4Dr	<p><b>CAB PERIMETER SCENE LIGHTS</b> There will be four (4) TecNiq, Model T10-LC00-1, 15.00" lights with white LEDs and 45 degree stainless steel brackets provided per the following: one (1) under the driver's side cab access step one (1) under the passenger's side cab access step one (1) under the passenger's side crew cab access step one (1) under the driver's side crew cab access step The lights will be activated when the battery switch is on, when the respective door is open and by the same control selected for the body perimeter lights.</p>
0616648	Lights, Perimeter Pump House, TecNiq T10-LC00-1 15" LED 1lt	<p><b>PUMP HOUSE PERIMETER LIGHTS</b> There will be one (1) TecNiq, Model T10-LC00-1, 15.00" 12 volt DC light with white LEDs and 45 degree stainless steel bracket provided under the passenger's side pump panel running board. The light will be controlled by the same means as the body perimeter lights.</p>
0616277	Lights, Perimeter Body, TecNiq T10-LC00-1 15" LED 2lts, Turntable Access	<p><b>BODY PERIMETER SCENE LIGHTS</b> There will be two (2) TecNiq, Model T10-LC00-1, 15.00" 12 volt DC lights with white LEDs and 45 degree stainless steel brackets provided per the following: one (1) light under the driver's side turntable access steps one (1) light 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 a cab door is open.</p>
0896454	Enhanced Software for Perimeter Lts	<p><b>ENHANCED SOFTWARE FOR PERIMETER LIGHTS</b> All perimeter lights will be deactivated when the parking brake is released unless alternate control is selected. The cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors closed.</p>
0550452	Lights, Side Scene, Zico ZQL-SS-LED, Stainless 1st	<p><b>SCENE LIGHTS</b> There will be two (2) Ziamatic, Model Model ZQL-SS-LED, LED scene light(s) with stainless steel housing, installed on the side of the apparatus, recessed into the rear downrigger pan cover, one (1) each side and below the warning light. A control for the light(s) selected above will be the following: a switch at the driver's side switch panel no additional switch location no additional switch location no additional switch location These lights may be load managed when the parking brake is set.</p>
0742601	Light, Visor, Wln S86M**, 86" Cnt Feature	<p><b>12 VOLT LIGHTING</b> There will be a Whelen® Model S86M**, 86.00" long 38,800 lumens DC powered light provided on visor bracket(s) hanging off the front of the cab roof over the windshield. The painted parts of this light assembly to be black. The light will include the following: White scene LEDs Two (2) amber LED modules as clearance lights Three (3) amber LED modules as identification lights Four (4) additional LED modules. The additional additional modules to be four (4) scene light modules with white LEDs. The clearance and identification LEDs will be activated with the headlight switch. The scene LEDs will be activated when the battery switch is on and by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel is on. There will be a switch in the cab on the switch panel to control the flashing or spot LED modules. Amber flashing LED modules will be deactivated when the parking brake is released. The white scene and flashing LED modules may be load managed when the parking brake is applied.</p>

0768059	Lights, WIn, PCPSM2* Pioneer, 12 VDC, 2nd	<p><b>12 VOLT DC SCENE LIGHTS</b></p> <p>There will be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC powered light with white LEDs installed on the cab located, RIGHT SIDE OF THE CAB ABOVE WINDOW. <span style="border: 1px solid black; padding: 2px;">Item 1.</span></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 and by a switch at the left side pump 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><b>12 VOLT DC SCENE LIGHTS</b></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, LEFT SIDE OF THE CAB ABOVE WINDOW.</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 and by a switch at the left side pump panel.</p> <p>The light(s) may be load managed when the parking brake is applied.</p>
0763608	Lights, WIn, PCPSM2*, Pioneer, 12 VDC, 2nd	<p><b>12 VOLT LIGHTING</b></p> <p>There will be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC surface mount light (s) installed on the body of the apparatus located, RS Body Centered over RS3 on Hatch Compartment. Reference Yuba City #37088.</p> <p>The light(s) will include housing(s) with a chrome cover.</p> <p>The light(s) will be controlled by a switch at the driver's side switch panel, by a switch at the left side pump panel and by the same control that has been selected for the passenger's side scene light(s).</p> <p>The light(s) may be load managed when the parking brake is applied.</p>
0763610	Lights, WIn, PCPSM2*, Pioneer, 12 VDC, 1st	<p><b>12 VOLT LIGHTING</b></p> <p>There will be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC surface mount light (s) installed on the body of the apparatus located, LS Body Centered over LS3 on Hatch Compartment. Reference Yuba City #37088.</p> <p>The light(s) will include housing(s) with a chrome cover.</p> <p>The light(s) will be controlled by a switch at the driver's side switch panel, by a switch at the left side pump panel and by the same control that has been selected for the driver's side scene light (s).</p> <p>The light(s) may be load managed when the parking brake is applied.</p>
0772850	Lights, WIn, S16*M* 16" 12VDC, 1st	<p><b>12 VOLT LIGHTING</b></p> <p>There will be two (2) Whelen® Model S16*M*, 6,480 lumens 16.00" 12 volt DC light(s) with white LEDs in flood optics provided on the body located, at the rear, in the scene light, traffic advisor housing, one (1) on each side of the traffic advisor.</p> <p>The painted parts of this light assembly to be black.</p> <p>The scene LEDs will be activated by a switch at the driver's side switch panel, by a switch at the left side pump panel and by a switch in a recessed cup located at the passenger's side rear bulkhead.</p> <p>These light(s) may be load managed when the parking brake is applied.</p>
0565198	Not Required, Deck Lights, Other Hose Bed & Rear Lighting, Aerial	
0645677	Lights, Not Required, Rear Work, Alt. 12 Volt Lights At Rear Body	
0709438	Lights, Walk Surf, FRP Flood, LED	<p><b>WALKING SURFACE LIGHT</b></p> <p>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.</p> <p>The light(s) will be activated when the body step lights are on.</p>
0793399	Aerial, HD Ladder 107' ASL Tandem, Alum Body	
0554269	Body Skirt Height, 18"	

0013386	Tank, Water, 300 Gallon, Poly, Ascendant Tandem, PAL/PAP	<p><b>WATER TANK</b></p> <p>The water tank will have a capacity of 300 gallons and will be constructed of polypropylene in a rectangular shape. <span style="border: 1px solid black; padding: 2px;">Item 1.</span></p> <p>The joints and seams will be nitrogen welded inside and out.</p> <p>The tank will be baffled in accordance with the current edition of applicable NFPA standards. The baffles will have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments.</p> <p>The longitudinal partitions will be constructed of 0.38" polypropylene plastic and extend from the bottom of the tank through the top cover to allow positive welding.</p> <p>The transverse partitions extend from 4.00" off the bottom to the underside of the top cover. All partitions interlock and will be welded to the tank bottom and sides.</p> <p>The tank top will be constructed of 0.50" polypropylene.</p> <p>It will be recessed 0.38" and will be welded to the tank sides and the longitudinal partitions. It will be supported to keep it rigid during fast filling conditions.</p> <p>Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions.</p> <p>Two of the dowels will be drilled and tapped (0.50" diameter, 13.00" deep) to accommodate lifting eyes.</p> <p>A sump will be provided at the bottom of the water tank. The sump will include a drain plug and the tank outlet.</p> <p>Tank will be installed in a fabricated "cradle" assembly constructed of structural steel. Sufficient crossmembers are provided to properly support bottom of tank.</p> <p>Crossmembers are constructed of steel bar channel or rectangular tubing.</p> <p>Tank "floats" in cradle to avoid torsional stress caused by chassis frame flexing.</p> <p>Rubber cushions, 0.50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on.</p> <p>Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle. Tank mounting system is approved by the manufacturer.</p>
0003405	Overflow, 4.00" Water Tank, Poly	<p>Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.</p>
		<p>Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.</p>
		<p>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.</p>
0028104	Foam Cell Required	
0003429	Not Required, Direct Tank Fill	
0751747	Hose Bed, Aluminum, 2G Aerial	<p><b>HOSE BED</b></p>
		<p>The hose bed will be fabricated of .125"-5052-H32 aluminum with a nominal 31,000 psi tensile strength.</p>
		<p>The sides will not form any portion of the fender compartments.</p>
		<p>The hose bed will be located ahead of the ladder turntable.</p>
		<p>Hose removal will be at the rear of the body via "chutes" under the turntable on the right side. Each chute will be enclosed with a full height smooth aluminum. There will be a SouthCo C2 chrome raised trigger lever latch, and a pneumatic cylinder at the top of the door (if applicable).</p>
		<p>The hose bed flooring will consist of removable aluminum grating with a top surface that is corrugated to aid in hose aeration.</p>
		<p>The grating slats will be 0.50" x 4.50" with spacing between slats for hose ventilation.</p>
0723547	Painted Hose Bed/Cargo Area	<p>The hose bed/cargo area interior will be painted to match the lower body color.</p>
0003492	Hose Bed Capacity, Special Amount, Ascendant, 100AAT, PAP, PAL	<p>Hose capacity will be a minimum of 400' of 5".</p>
0581819	Hose Restraint, Hose Bed, Vinyl, Top, Aerial	<p><b>HOSE BED HOSE RESTRAINT</b></p>
		<p>A black hose bed cover will be furnished with quarter turn fasteners at the front and quarter turn fasteners on the sides.</p>
0003512	Running Boards, Ascendant, PAL	<p><b>RUNNING BOARDS</b></p>
		<p>The running boards will be fabricated of 0.125" bright aluminum treadplate and supported by structural steel angle assemblies bolted to the chassis frame rails.</p>
		<p>Running boards will be 13.00" deep and are spaced away from the body 0.50".</p>
		<p>A splash guard will be provided to keep road dirt or water from splashing up onto the pump panels.</p>
		<p>The running boards will have a riser on the body to protect the painted surface from damage by stepping on the running boards.</p>
		<p>The entire surface of the running boards will be covered with bright aluminum treadplate.</p>

0733027	T/T Steps, Angled, w/Lift Bar Latch, LS/RS, Stabilizer Controls, Ascend TA, 105'	<p><b>TURNTABLE ACCESS LADDER</b>  Access to the turntable from the left side and right side will be provided just behind the compartmentation. <span style="border: 1px solid black; padding: 2px;">Item 1.</span>  Access will consist of a pull-out, swing-down climbing ladder attached to the rear panel. The access ladder will be recessed into the angled corners of the rear body. The 2.25" deep climbing ladder surfaces will be constructed with Traction Tread®. The bottom step will be a flip-down, stirrup step.  All steps will have a height not greater than 14.00" from top surface to top surface.  The bottom step height will not exceed 24.00" from the ground to the top surface of the step at any time.  The stepwell will be lined with bright aluminum treadplate to act as scuffplates.  The aerial stabilizer controls will be recessed in the angled portion of each side step well.  The steps will be connected to the "Do Not Move Truck" indicator.</p>
0892656	Lights, Step (6), P25 LED, Each Side	<p><b>STEP LIGHTS</b>  There will be three (3) white LED step lights with chrome housing provided for each set of aerial turntable access steps.  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 when the parking brake is applied.</p>
0690023	Wall, Rear, Smooth Aluminum	<p><b>SMOOTH ALUMINUM REAR WALL</b>  The rear wall will be smooth aluminum.</p>
0029508	Tow Eyes, Chrome (2) (Aerial)	<p><b>TOW EYES</b>  Two (2) rear chrome plated 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. Each tow eye will be rated for 9000lb.</p>
0784151	Rear Substructure, Special Width, Angled Turntable Steps, Ascend TA, PAL,PAP	<p><b>REAR SUBSTRUCTURE WIDTH</b>  The rear substructure will be a special width of approximately 72.50" wide. This will allow for specially designed aerial turntable steps that are angled.</p>
0013641	Construction, Compt, Alum, Ascendant Tandem, PAL	<p><b>COMPARTMENTATION</b>  Compartmentation will be fabricated of 0.125" 5052 aluminum. The side compartments are an integral assembly with the rear fenders. Fully enclosed rear wheel housings will be provided to prevent rust pockets and for ease of maintenance. Due to the severe loading requirements of this aerial, a method of compartment body support suitable for the intended load will be provided. The backbone of the support system will be the chassis frame rail, which is the strongest component of the chassis and is designed for sustaining maximum loads.  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 in front of the rear axle will include a 3.00" steel support assemblies which are bolted to the chassis frame rails. A steel framework will be mounted to the body above these support assemblies connected to the support assemblies with isolators. There will be one (1) support assembly mounted to each chassis frame rail.  The compartmentation behind the rear axle will include 3.00" steel support assemblies which are bolted to the chassis frame rails and extend underneath to the outside edge of the body. The support assembly will be coated to isolate the dissimilar metals before it is bolted to the body. There will be one (1) support assembly mounted to each chassis frame rail.  Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip. The compartment door openings are framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle. Drip protection is provided over all door openings by means of bright aluminum extrusion or formed bright aluminum treadplate. Side compartment tops will be covered with bright aluminum treadplate with a 1.00" rolled over edge on the front, rear and outward side. The covers are fabricated in one (1) piece and have the corners welded. A bright aluminum treadplate cover will be provided on the front wall of each side compartment. All screws and bolts which protrude into a compartment will have acorn nuts at the ends to prevent injury. The body design has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue life and structural integrity of the compartment body and substructure.</p> <p><b>AGGRESSIVE WALKING SURFACE</b>  All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.</p> <p><b>LOUVERS</b>  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>



0063686	Compt, LS F/H F/D, Lap Drs, w/o Chute, Ascendant Tandem, 105 HDL, 100 HAL	<p><b>LEFT SIDE COMPARTMENTATION</b></p> <p>A full height double door compartment ahead of the rear wheels will be approximately 41 wide x 64.00" high x 24.25" deep with a door opening of approximately 40.00" wide x 60. One (1) lift-up door compartment above the fender compartments and over the rear axles will be provided. The compartment will be approximately 72.13" wide x 33.25" high x 24.25" deep inside with a door opening of approximately 65.00" wide x 29.62" high.</p> <p>A compartment with a single pan stainless steel painted to match the upper body color door will be located above the front stabilizer. The door will be hinged on the top with pneumatic cylinder (s) with a SouthCo C2 chrome raised trigger lever latch. The compartment will be approximately 18.00" wide x 23.00" high x 24.25" deep with a door opening of approximately 12.00" wide x 15.75" high.</p>
0746723	Compt, LS Turntable, F/H F/D, Lap Drs, Angled T/T Access, Ascendant TA, 105',LSL	<p>A full height double door compartment behind the rear wheels will be approximately 43.75" wide x 49.25" high x 21.25" deep inside with a door opening of approximately 42.00" wide x 45.75" high. One (1) compartment below the turntable with a lift-up door will be provided. The compartment will be approximately 39.38" wide x 18.38" high x 21.25" deep inside with a door opening of approximately 35.00" wide x 14.88" high.</p>
0023672	Compt, IPO Stairs, Not Required, LS	
0063729	Compt, RS F/H F/D, Lap Drs, w/Chute, Ascendant Tandem, 105 HDL, 100 HAL	<p><b>RIGHT SIDE COMPARTMENTATION</b></p> <p>A full height double door compartment, ahead of the rear wheels, will be 41.75" wide x 64.00" high x 24.25" deep with a door opening of 40.00" wide x 60.50" high.</p> <p>One (1) lift-up door compartment will be provided above the fender compartments and over the rear axles. The compartment will be 72.13" wide x 33.25" high x 24.25" deep inside with a door opening of 65.00" wide x 29.62" high.</p> <p>A compartment with a single pan smooth aluminum painted to match the lower body color door will be located above the front stabilizer. The door will be hinged on the rear body side with a SouthCo C2 chrome raised trigger lever latch. The compartment will be approximately 18.00" wide x 23.00" high x 24.25" deep with a door opening of approximately 12.00" wide x 15.75" high. There will be an angled notch in the rear of the compartment over the wheels to allow for the hose chute.</p>
0744440	Compt, RS Turntable, F/H, Lap Drs, Angled T/T Access, Ascendant TA, 105',LSL	<p>A full height double door compartment behind the rear wheels will be 43.75" wide x 49.25" high x 21.25" deep inside the lower 29.75" and 12.00" in the upper portion with a door opening of 42.00" wide x 45.75" high.</p> <p>A compartment below the turntable with a lift-up door will be 39.38" wide x 18.38" high x 12.00" deep inside with a door opening of 35.00" wide x 14.88" high.</p>
0023673	Compt, IPO Stairs, Not Required, RS	
0666824	Doors, Lap w/"D" Handle, Aluminum, Side Compartments	<p><b>SIDE COMPARTMENT DOORS</b></p> <p>All hinged compartment doors will be lap style with double panel construction and fabricated of .09" 5052H32 aluminum. Doors will be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement will be installed between the outer and interior panels. Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment. All compartment doors will have polished stainless steel continuous hinge with a pin diameter of .25", that is bolted or screwed on with stainless steel fasteners. A dielectric substance will be applied to each hinge fastener.</p> <p>All door lock mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.</p> <p>Doors will be latched with recessed, polished stainless steel "D" ring handles and Eberhard 106 locks.</p> <p>To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the "D" ring handle and the door.</p>
0540787	Stabilizer Compartment, Modified for 18" Stabilizer Penetration	<p><b>BODY MODIFICATION FROM STANDARD</b></p> <p>The compartment above the stabilizers (if applicable) will be decreased due to deeper stabilizer depth. The height of the compartment will decrease 4.00" and the compartment door will move up 4.00" higher. The stabilizer frame opening as well as the stabilizer pan will be increased in height by 6.00".</p>
0556162	Not Req'd, Compt Blister in Front of Rear Axle	

Item 1.

0759580	Bumper,Rear,5" Trdplt Cover,Angled Corners,w/Angled T/T Steps,Ascend TA,PAP,PAL	<p><b>REAR BUMPER</b>  A 5.00" rear bumper will be furnished. Bumper will be constructed of steel framework and covered with polished aluminum treadplate. The bumper will be 4.00" deep x 5.00" high and be spaced away from the body approximately 1.00". It will extend the full width of the body, approximately 72.50" wide due to specially angled turntable access steps. Each outside corner of the bumper will be angled to match the angle of the angled turntable steps.</p>
0603711	Guard, Drip Pan, S/S, Rollup Door, Aerial	<p><b>DOOR GUARD</b>  There will be one (1) compartment door that will include a guard/drip pan designed to protect the rollup door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed on the rear compartment.</p>
0505888	Keyed Locks for Latches, Lap Doors (#751 Lock)	<p><b>KEYED LOCK(S)</b>  There will be eight (8) compartment doors that require a keyed lock. The compartments to have a keyed lock will be All side Body compartments.</p>
0603083	Lights, Compt,Pierce LED,Dual Light Strips,Each Side Dr,Ascend TA,75'HAL,PAP,HDL	<p><b>COMPARTMENT LIGHTING</b>  There will be ten (10) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment(s). Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb. Opening the compartment door will automatically turn the compartment lighting on.</p>
0760868	Lights, Cargo/Dunnage, Dual LED Light Strips, Each Side	<p><b>CARGO/DUNNAGE AREA LIGHTING</b>  There will be two (2), 12 volt DC strips lights with white LEDs and stainless steel protective cover, provided to illuminate the cargo area. One (1) light strip will be installed the entire length of the left side of the cargo area. One (1) light strip will be installed the entire length of the right side of the cargo area. The light(s) will be activated when the parking brake is applied.</p>
0603420	Shelf Tracks, Painted, Aerial	<p><b>MOUNTING TRACKS</b>  There will be six (6) sets of tracks for mounting shelf(s) in LS1, LS3, LS4, RS1, RS3 and RS4. These tracks will be installed vertically to support the adjustable shelf(s) and will be full height of the compartment. The tracks will be painted to match the compartment interior.</p>
0600289	Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations, Aerial	<p><b>ADJUSTABLE SHELVES</b>  There will be eight (8) shelves with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track. The shelves will be held in place by .12" thick stamped plated brackets and bolts. The location(s) will be in LS1 at the depth transition point, in RS1 at the transition point, in RS4 at the transition point, in RS1 centered between the floor and the ceiling, in RS4 centered between the floor and the ceiling, in RS4 in the upper third, in LS3 centered between the floor and ceiling and in LS4 in the upper third.</p>
0709689	Tray, 500 lb Slide-out, 2" Sides - Adj. Height, Predefined Locations	<p><b>SLIDE-OUT ADJUSTABLE HEIGHT TRAY</b>  There will be two (2) slide-out trays provided. Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position. Each tray will be constructed of aluminum painted spatter gray. Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location. An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand. The location(s) will be in RS4 in the lower third and in LS4 in the lower third</p>

Item 1.

0603763

Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides, 2G Aerial

**SLIDE-OUT FLOOR MOUNTED TRAY**

There will be four (4) floor mounted slide-out tray(s) provided. Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position. Each tray will be constructed of aluminum painted spatter gray. There will be two undermount-roller bearing type slides rated at 250 lb 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 50 lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request. Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand. The location(s) will be RS1, RS4, LS1 and LS4.

Item 1.

0540317

Toolboard, Swing-out, Alum, .188", Peg Board

**SWING OUT TOOLBOARD**

A swing out aluminum toolboard will be provided. It will be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes. A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard. The board will be mounted on a pivoting device at the front of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load will be 400 pounds. The board will have positive lock in the stowed and extended position. The board will have a D-ring handle to secure it in the stowed position. The board will be mounted on adjustable tracks from front to back within the compartment. There will be One (1) toolboard(s) provided. The toolboard(s) will be spatter gray painted and installed RS3 full height and width.

0762030

Compt, Top of Compt, Hatch Style, Smooth Aluminum, Painted, Aerial

**STORAGE COMPARTMENT(S)**

There will be one (1) storage compartment(s) provided on top of the right side body compartment (s). There will be two (2) horizontally hinged, equally sized lift-up doors with chains on each end of each door with a pair of socket and plunger latches with chrome grab handles on each door. All doors will be hinged on the outside of the apparatus. The door(s) shall be held short in length or width in order to open without having to unbed the aerial device. The size of each compartment will be approximately 116.00" long x 11.00" high x 24.50" wide and will be constructed of smooth aluminum and properly reinforced to sustain the weight of a firefighter. Each compartment will be welded to the top of the body compartment and painted to match the upper body paint color with painted seam trim. There will be a white LED strip light installed on the inside edge of the compartment that runs the full length of the compartment.

0806084

SP Compt, Top of Compt, Stokes/Misc w/Backbd Under Cover, Hatch Style, Painted, 24.50"W

**STOKES BASKET/MISC STORAGE BOX w/ADD'L BACKBOARD STORAGE**

There will be a total of one (1) storage box(es) provided for a stokes basket, miscellaneous equipment, and backboard storage above the left side compartments. The box(es) will be welded to the top of the body. The storage box will be approximately 24.50" wide x 115.00" long x 11.00" and will be constructed of smooth aluminum and painted. The forward 88.00" portion of the box will be used for stokes storage and the remaining rear portion will be miscellaneous storage. A vertical divider will separate the two areas. The box(es) will be integrated into the front compartment assembly and be painted #101 black. A trim piece will be provided at the seam. Two (2) lift-up aluminum treadplate hatch style doors, hinged on the outboard side, with pneumatic lift cylinders on each end will be provided, the forward sized to fit over the stokes storage, the rear sized to fit over the miscellaneous storage area. Chrome grab handles will be provided for ease of opening and closing each. The covers will have flanges that overlap the side of the box to help provide more resistance to water intrusion. The doors will be designed and sized such that they can be opened when the aerial device is bedded. Mounted to the underside of the cover will be a backboard that is 74.00" long x 16.00" wide x 2.00" high and model stokes will be Junkin, MIL-8131W (see option 650752). The backboard will be mounted such that it is located over the stokes basket area of the box and secured from moving during travel. There will be a white LED strip light installed on the inside edge of the compartment that runs the full length of the compartment.

0004016

Rub Rail, Aluminum Extruded, Side of Body

**RUB RAIL**

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail. Trim will be 2.12" high with 1.38" flanges turned outward for rigidity. The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

0802978	Fender Crowns, Rear, S/S, w/Removable Fender Liner, Aerial, 2G, Two Pair	<p><b>BODY FENDER CROWNS</b> Polished stainless steel fender crowns will be provided around the rear wheel openings and a dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion. <span style="border: 1px solid black; padding: 2px;">Item 1.</span></p> <p>The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber wetting will be provided between the body and crown.</p> <p><b>BODY FENDER LINER</b> A painted to match the lower body color fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.</p>
0519849	Not Required, Hose, Hard Suction	<p><b>HARD SUCTION HOSE</b> Hard suction hose will not be required.</p>
0893756	Handrails, Side Pump Panels, Per Print, Aerial	<p><b>HANDRAILS</b> 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. Drain holes will be provided in the bottom of all vertically mounted handrails. Handrails will be provided to meet current edition of applicable NFPA standards. The handrails will be installed as noted on the sales drawing. There is to be no step below the right side running board.</p>
0802986	Compt, Air Bottle, Between Tandems, Four (4) Bottles, w/ Straps, Bolt-In, Aerial	<p><b>FOUR AIR BOTTLE STORAGE COMPARTMENT</b> A total of two (2) air bottle compartments will be provided and located on the left side and the right side, centered between the tandem rear wheels. The air bottle compartment will consist of individual bins each designed to hold an air bottle with a maximum diameter of 7.63" and a maximum depth of 26.00". Each compartment will hold a total of four (4) air bottles. The compartment will accommodate three (3) bottles across the top and one (1) centered below. The bottom air bottle will be accessible only when the top center bottle is removed and the hinged partition over the bottom bottle is lifted up. Each bottle will be separated by a partition. A drop down door with support cables with pair of Southco raised trigger C2 chrome lever latches will be provided for each compartment. The door will be painted to match the lower body stainless steel. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal. Inside the compartment there will be a drain hole and black Dura-Surf friction reducing material.</p> <p><b>AIR BOTTLE COMPARTMENT STRAP</b> Straps will be provided in the air bottle compartment(s) to help contain the top three (3) air bottles. The straps will wrap around the neck of each bottle and attach to the wall of the compartment.</p>
0804248	Compt, Air Pack Fender Panel Corner, Bolt-In, Tandem Aerials	<p><b>AIR PACK STORAGE IN FENDER PANEL CORNER</b> An air pack compartment will be provided in the upper corner of a total of one (1) fender located on the left side forward of the rear wheels. The air pack compartment(s) will be tapered to match the profile of the space available in the fender. The compartment(s) will be approximately 15.50" wide at the top and 4.50" wide at the bottom for the wheel cutout. The compartment(s) will be 14.50" tall at the body side compartment and 5.00" tall at the wheel cutout. The compartment(s) will be 26.00" deep and have a drain hole. Inside the compartment, there will be black rubber matting. A vertically hinged door with tapered corners and a Southco raised trigger C2 chrome lever latch will be provided for each compartment. The door will be painted to match the lower body stainless steel. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.</p>
0804448	Compt, Extinguisher, Fender, 9.00" Square, Bolt-In, Tandem Aerials	<p><b>EXTINGUISHER STORAGE</b> A quantity of two (2) extinguisher compartments will be provided on the right side forward of the rear wheels and on the right side rearward of the rear wheels. The extinguisher compartment will be in the form of a 9.00" square tube and of adequate depth to accommodate different size extinguishers. A painted to match the lower body stainless steel door with a flush Southco C2 chrome latch will be provided to contain the extinguisher. A dielectric barrier will be provided between the door hinge, hinge fasteners, and the body sheet metal. Inside the compartment, black Dura-Surf friction reducing material will be provided. There will also be a drain hole for each compartment.</p>
0004218	Ladder, 35' Duo-Safety 1200A 2-Sect	<p><b>EXTENSION LADDER</b> There will be one (1) 35' two (2) section aluminum Duo-Safety Series 1200-A extension ladder(s) provided.</p>
0004222	Ladder, 24' Duo-Safety 900A 2-Section	<p><b>AERIAL EXTENSION LADDER</b> There will be two (2) 24' two (2) section aluminum Series 900-A extension ladder(s) provided and located in the aerial torque box.</p>

0024232	Ladder, 16' Duo-Safety 875A Roof	<b>ROOF LADDER</b> There will be one (1) 16' aluminum Duo-Safety Series 875-A roof ladder(s) provided.	<i>Item 1.</i>
0648681	Ladder, 14' Duo-Safety 875-DR Roof	<b>ADDED ROOF LADDER</b> There will be one (1) aluminum, 14' Duo Safety 875-DR roof ladder provided (1) mounted to Aerial Base Inside of Sign Board.	
0014232	Ladder, 20' Duo-Safety 875A Roof	<b>ADDED ROOF LADDER</b> There will be one (1) 20' roof, aluminum, Series 875-A provided.	
0004233	Ladder, 14' Duo-Safety Fresno 701	<b>AERIAL ATTIC EXTENSION LADDER</b> There will be one (1) 14' Fresno aluminum Duo-Safety Series 701 attic extension ladder(s) provided.	
0004246	Ladder, 10' Duo-Safety Folding, 585A	<b>AERIAL FOLDING LADDER</b> There will be one (1) 10' aluminum Duo-Safety Series 585-A folding ladder(s) provided and located in the aerial torque box.	
0684572	Ladders Stored in Torque Box, Gortite Roll, Ascendant TA, ML, HL, PAP, Spcl Fstrnr	<b>GROUND LADDER STORAGE</b> The ground ladders are stored within the torque box and are removable from the rear. Ladders will be enclosed to prevent road dirt and debris from fouling or damaging the ladders. The ladders rest in full length stainless steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder. A Gortite rollup door will be provided at the rear, double faced, aluminum construction and painted one (1) color to match the lower portion of the body. The latching mechanism will consist of a full length lift bar lock with latches on the outer extrusion of the door frame. A stainless plate with a two bend flange and a stainless steel hinge will be provided to secure the aerial ladder complement. The plate assembly will be riveted to the bottom of the entrance of the torque box ladder storage area. When the plate is vertical, it will secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door can not close, which will activate the "Open Door Indicator Light" within the cab. The rollup door together with hinge friction will secure the plate in place during driving operations. A door guard will be provided to prevent tools inside the torque box from damaging the rollup door.	
0602100	Lights, Torque Box Ladder Storage, Pierce LED Strip Lights, 2 Lts	<b>LADDER STORAGE LIGHTING</b> There will be 21.00" white 12 volt DC LED strip lights in the torque box ladder storage compartment. One (1) light will be provided on each side of the ladder storage area. The lights will be activated when the ladder storage compartment door is opened.	
0777289	Poly Hinge Guard, White, Torque Box Ladder Storage	<b>LADDER RETAINER HINGE GUARD</b> There will be a white polyethylene high density strip provided at the rear ladder retainer hinge to protect and allow easy access for the ground ladders. It will be full width of the ladder retainer hinge. The strip will be attached with countersunk screws and the edges will be chamfered.	
0685402	Dura-Surf, Added	<b>DURA-SURF MATERIAL</b> Black Dura-Surf friction reducing material will be added to the bottom of seven (7) storage locations and located All Extension and Roof Ladders to prevent damage. The Dura-Surf material will be made to fit the storage area.	
0658169	Ladders, Nested, Left Side Ground Ladder Storage	<b>NESTED LADDER STORAGE</b> 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	<b>NESTED LADDER STORAGE</b> There will be nested ladders on the right side of the ladder storage compartment.	
0816914	Pike Pole, 12', Provided by Fire Department, NFPA 2024	<b>12' PIKE POLE PROVIDED BY FIRE DEPARTMENT</b> The pike poles are not on the apparatus as manufactured. The fire department will provide and mount the pike poles. There will be two (2) 12' pike pole(s) provided. The pike pole(s) will be a Nupla 12' pike pole.	
0816920	Pike Pole, Provided by Fire Department, NFPA 2024	<b>PIKE POLE PROVIDED BY FIRE DEPARTMENT</b> The pike poles are not on the apparatus as manufactured. The fire department will provide and mount the pike poles. There will be two (2) pike pole(s) provided. The pike pole(s) will be a Fire Hooks Unlimited 8' pike pole.	

0816918	Pike Pole, 6', Provided by Fire Department, NFPA 2024	<p><b>6' PIKE POLE PROVIDED BY FIRE DEPARTMENT</b></p> <p>The pike pole is not on the apparatus as manufactured. The fire department will provide mount the pike poles.</p> <p>There will be two (2) 6' pike pole(s) provided. The pike pole(s) will be a Fire Hooks Unlimited 6 foot and 8 foot roof hook.</p>
0548410	Not Required, Pole, Pike, 3'	
0770464	Trough, S/S, Torque Box/Ladder Storage, D-Handled Pike Pole/Trash Hooks	<p><b>PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE</b></p> <p>There will be a total of two (2) stainless steel trough(s) provided in the torque box/ladder storage area.</p> <p>The trough(s) will accommodate a Nupla fiberglass 8' roof vent/trash hook with D handle.</p>
0770572	Pike Pole Tubes, in Torque Box/Ladder Storage, Alum, Special Notch, NY Style	<p><b>PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE</b></p> <p>There will be aluminum tubing provided in the torque box/ladder storage area for a total of two (2) pike poles. The pike pole tube(s) will be notched to allow a New York style pike pole to fit in the tube.</p> <p>If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.</p>
0770578	Pike Pole Tubes, in Torque Box/Ladder Storage, ABS	<p><b>PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE</b></p> <p>There will be ABS tubing provided in the torque box/ladder storage area for a total of four (4) pike poles.</p> <p>If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.</p>
0768976	Bell, 12" Chrome w/Eagle, Mounted on Cab Corner, Large Brkt	<p><b>BELL</b></p> <p>A chrome plated, 12.00" bronze cast bell, complete with an eagle, will be mounted on the passenger side radiused corner of cab face. The cab will be properly reinforced to support the weight of the bell, the reinforcement bracket allow the bell to mount toward the upper corner of the windshield. A rope pull, for the bell, will be installed inside the cab.</p>
0593085	Step, Folding, Front Bulkhead (Aerial), Left Side Only, w/LED, Trident	<p><b>STEP</b></p> <p>A folding step will be provided on the left side front compartment bulkhead for access to the hose bed. The step will be bright finished, non-skid with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface. The step will incorporate an LED light to illuminate the stepping surface. The step can be used as a hand hold with two openings wide enough for a gloved hand.</p>

Item 1.

**PUMP COMPARTMENT**

The pump compartment will be separate from the hose body and compartments so that it can flex independently of the other. The pump compartment will be constructed of the same material as the body compartmentation. Item 1.

The pump compartment substructure will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards.

The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist.

Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly.

**PUMP MOUNTING**

Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump.

**PUMP CONTROL PANELS (Left Side Control)**

All pump controls and gauges will be located at the left (driver's) side of the apparatus and properly identified.

Layout of the pump control panel will be ergonomically efficient and systematically organized. The pump operator's control panel will be removable in two (2) main sections for ease of maintenance:

The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges.

The lower section of the panel will contain all inlets, outlets, and drains.

All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding.

**IDENTIFICATION TAGS**

The identification tag for each valve control will be recessed in the face of the tee handle.

All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge.

All line pressure gauges will be mounted directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag.

All remaining identification tags will be mounted on the pump panel in chrome plated bezels.

The pump panel on the right (passenger's) side will be removable with lift and turn type fasteners. Trim rings will be installed around all inlets and outlets.

0035501

Pump House Structure, Std Height

0004435

Pump, Waterous, CSU, 2000 GPM,  
Single Stage**PUMP**

Pump will be a Waterous CSU, 2000 gpm single (1) stage midship mounted centrifugal type.

Pump will be the class "A" type.

Pump will deliver the percentage of rated discharge at pressures indicated below:

100 percent of rated capacity at 150 psi net pump pressure.

70 percent of rated capacity at 200 psi net pump pressure.

50 percent of rated capacity at 250 psi net pump pressure.

Pump body will be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).

Pump will be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.

Pump case halves will be bolted together on a single horizontal face to minimize a chance of leakage and facilitate ease of reassembly. No end flanges will be used.

Discharge manifold of the pump will be cast as an integral part of the pump body assembly and will provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.

The three (3) 3.50" openings will be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.

Impeller shaft will be stainless steel, accurately ground to size. It will be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller will have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.

Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used.

0004482

Seal, Mechanical, Waterous

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.

0816447	Trans, Pump, Waterous C22 Series	<p><b>PUMP TRANSMISSION</b></p> <p>The pump transmission will be made of a three (3) piece, aluminum, horizontally split case. Power transfer to pump will be through a high strength Morse HY-VO silent drive chain. 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.</p>	Item 1.
0635600	Pumping Mode, Stationary Only	<p><b>PUMPING MODE</b></p> <p>An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system will be designed to allow stationary pumping only.</p>	
0605126	Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous	<p><b>AIR PUMP SHIFT</b></p> <p>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.</p>	
0003148	Transmission Lock-up, EVS	<p><b>TRANSMISSION LOCK-UP</b></p> <p>The direct gear transmission lock-up for the fire pump operation will engage automatically when the pump shift control in the cab is activated.</p>	
0004547	Auxiliary Cooling System	<p><b>AUXILIARY COOLING SYSTEM</b></p> <p>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. It will be installed in the pump or engine compartment with the control located on the pump operator's control panel. The exchanger will be plumbed to the master drain valve.</p>	
0014486	Not Required, Transfer Valve, Single Stage Pump		
0746501	Valve, Relief Intake, Elkhart	<p><b>INTAKE RELIEF VALVE - PUMP</b></p> <p>There will be One (1) Elkhart Style 40 relief valve(s) installed on the suction side of the pump preset at 125 psig. The relief valve(s) will have a working range of 75 psi to 250 psi. The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag. The relief valve pressure control will be located behind the right side pump panel with a stainless steel access door.</p>	
0692045	Controller, Pressure, FRC, Pump Boss, PBA400	<p><b>PRESSURE CONTROLLER</b></p> <p>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.</p>	
0072153	Primer, Trident, Air Prime, Air Operated	<p><b>PRIMING PUMP</b></p> <p>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 applicable NFPA standards. 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.</p>	
0664604	Pump Witness, Pump Operation and Flow Each Discharge - Final Inspection	<p><b>PUMP WITNESS</b></p> <p>A witness of the functionality of the pump will be provided at final inspection. This will be a detailed test where the pump is run at full capacity, inside the pump test facility. Also, each discharge will be connected, flowed and checked for capacity. Assistance will be provided by plumbing personnel at the time of inspection. There will be no recertification of the pump performance.</p>	
0044552	Line, 0.50" Recirculating w/Check Valve	<p><b>RECIRCULATING LINE WITH CHECK VALVE</b></p> <p>A 0.50" diameter recirculating line, from the pump to the water tank, will be furnished with a control installed at the pump operator's control panel. A check valve will be provided in this line to prevent the back flow of water from the tank to the pump if the valve is left in the open position.</p>	



0658368	Thermal Relief Valve, OPM, w/Red Warning Light, Waterous Pump	<p><b>THERMAL RELIEF VALVE</b>  A Waterous Overheat Protection Manager (OPM) will be included on the pump that monitors pump water temperature and opens to relieve water to cool the pump when the temperature of the pump water exceeds 140 Degrees F (60 C) and a red warning light that is triggered when the water in the pump reaches 180 F (82 C).  The warning light will act as an additional protection device if the temperature in the pump keeps rising after the valve opens. The warning light with a test switch will be mounted on the pump operator panel.  The discharge line will be plumbed to water tank fill tower.</p>
0780364	Manuals, Pump, (2) Total, Electronic Copies	<p><b>PUMP MANUALS</b>  There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.</p>
0602512	Plumbing, Stainless Steel and Hose, Single Stage Pump, Control Zone	<p><b>PLUMBING, STAINLESS STEEL AND HOSE</b>  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.  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.  Plumbing manifold bodies will be ductile cast iron or stainless steel.  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.  All water carrying gauge lines will be of flexible polypropylene tubing.  All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.</p>
0795135	Plumbing, Stainless Steel, w/Foam System	<p><b>FOAM SYSTEM PLUMBING</b>  All piping that is in contact with the foam concentrate or foam/water solution will be stainless steel. The fittings will be stainless steel or brass. Cast iron pump manifolds will be allowed.</p>
0004645	Inlets, 6.00" - 1250 GPM or Larger Pump	<p><b>MAIN PUMP INLETS</b>  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>
0014650	Pump Suction Tube(s), Short, All	<p><b>SHORT SUCTION TUBE(S)</b>  The suction tube(s) on the water pump will have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.</p>
0004646	Cap, Main Pump Inlet, Long Handle, NST, VLH	<p><b>MAIN PUMP INLET CAP</b>  The main pump inlets will have National Standard Threads with a long handle chrome cap. The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>
0084610	Valves, Akron 8000 series- All	<p><b>VALVES</b>  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.  Valves will have a <b>ten (10) year</b> warranty.</p>
0016158	Valve, Inlet(s) Recessed, Side Cntrl, "Control Zone"	<p>The location of the valve for the two (2) inlets will be recessed behind the pump panel.</p>
0004700	Control, Inlet, at Valve	<p><b>INLET CONTROL</b>  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><b>LEFT SIDE INLET</b>  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.  The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</p>
0004680	Inlet, Right Side, 2.50"	<p><b>RIGHT SIDE INLET</b>  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.  The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</p>

Item 1.

0092569	No Rear Inlet (Large Dia) Requested	
0064116	No Rear Inlet Actuation Required	
0092696	Not Required, Cap, Rear Inlet	
0009648	No Rear Intake Relief Valve Required on Rear Inlet	
0092568	No Rear Auxiliary Inlet Requested	
0723049	Valve, .75" Bleeder, Aux. Side Inlet, "T" Swing Handle	<b>INLET BLEEDER VALVE</b> A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a "T" swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.
0022033	Tank to Pump, (1) 3.00" Valve, 3.00" Plumbing, Reverse Linkage, Aerial	<b>TANK TO PUMP</b> Booster tank will be connected to the intake side of the pump with heavy duty piping and a 3.00" full flow line valve with the control remotely located at the operator's panel. The control on the pump panel will be "in" when the valve is open and "out" when the valve is closed. 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 water supply line to prevent the possibility of "back filling" the water tank which can damage the tank.
0004905	Outlet, Tank Fill, 1.50"	<b>TANK REFILL</b> 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.
0062133	Control, Outlets, Manual, Pierce HW if applicable	<b>DISCHARGE OUTLET CONTROLS</b> 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.
0004940	Outlet, Left Side, 2.50"	<b>LEFT SIDE DISCHARGE OUTLETS</b> 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.
0005091	Elbow, Left Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	<b>LEFT SIDE OUTLET ELBOWS</b> 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.
0092570	Not Required, Outlets, Left Side Additional	
0035094	Not Required, Elbow, Left Side Outlets, Additional	
0004945	Outlet, Right Side, 2.50"	<b>RIGHT SIDE DISCHARGE OUTLETS</b> 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.

0025091	Elbow, Right Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	<p><b>RIGHT SIDE OUTLET ELBOWS</b>  The 2.50" discharge outlets located on the right side pump panel will be furnished with a National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated 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>	Item 1.
0092571	Not Required, Outlets, Right Side Additional		
0089584	Not Required, Elbow, Right Side Outlets, Additional		
0816625	Outlet, Large Diameter, Right Side, Akron Valve	<p><b>LARGE DIAMETER DISCHARGE OUTLET</b>  There will be an Akron 8800 4.00" flat ball valve with 4.00" plumbing terminating with a 4.00" MNST chrome adapter on the right side pump panel.  The valve will be controlled with a(n) Pierce large handwheel with indicator located at the pump operator's panel.</p>	
0005097	Elbow, Large Dia Outlet, 30 Deg, 4.00" FNST x 5.00" Storz	<p><b>LARGE DIAMETER OUTLET ELBOWS</b>  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>	
0092572	Not Required, Outlet, Front		
0092575	Not Required, Outlet, Rear		
0045099	Not Required, Elbow, Rear Outlets		
0092574	Not Required, Outlet, Rear, Additional		
0085695	Not Required, Elbow, Rear Outlets, Large, Additional		
0092573	Not Required, Outlet, Hose Bed/Running Board Tray		
0752097	Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Chain	<p><b>DISCHARGE CAPS/ INLET PLUGS</b>  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><b>OUTLET BLEEDER VALVE</b>  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>	
0092504	Reducer, 2.50" FNST x 1.50" MNST, No Cap	<p><b>ADAPTERS</b>  There will be two (2) adapters with 2.50" FNST x 1.50" MNST threads installed on (1) LS 2.5" Outlet &amp; (1) RS 2.5" Outlet.</p>	
0029106	Not Required, Deluge Outlet		
0029302	No Monitor Requested		

0029304	No Nozzle Req'd	
0029107	No Deluge Mount	
0047583	Waterway Outlet & Control, 4" Akron, Handwheel	<b>AERIAL OUTLET</b> The aerial waterway will be plumbed from the pump to the water tower line with 5.00" pipe and a 4.00" Akron valve. The handwheel control for the waterway valve will be located at the pump operator's panel. An indicator will be provided to show the position of the valve.
0029167	Crosslays Sngl Sheet Unpainted, (2+) 1.50", Std. Cap	<b>CROSSLAY HOSE BEDS</b> 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.
0090442	Crosslays Sngl Sheet Unpainted, (1) 2.50" Std Cap	<b>2.50" CROSSLAY HOSE BED</b> One (1) crosslay with 2.50" outlets will be provided. This bed to be capable of carrying 200' of 2.50" double jacketed hose and will be plumbed with 2.50" i.d. pipe and gated with a 2.50" quarter turn ball valve. Outlet to be equipped with a 2.50" 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 control will be at the pump operator's panel. When used in conjunction with other crosslay/speedlay/deadlay configurations, a center crosslay divider, when needed, will be fabricated of .25" aluminum and will provide adjustment from side to side. The divider will be unpainted with a brushed finish. The remainder of the crosslay bed will be painted job color. Stainless steel vertical scuffplates will be provided at hose bed ends (each side of vehicle). Bottom of hose bed ends (each side) will also be equipped with a stainless steel scuffplate. Crosslay bed flooring will consist of removable perforated brushed aluminum.
0625106	Hose Restraint, Crosslay, Vinyl with Shock Cord, Each, Dual Bungee Pull-Tabs	<b>CROSSLAY HOSE RESTRAINT</b> To secure the hose within the crosslay beds during travel vinyl end skirts, with footman loops and a shock cords, will be provided on the end of each transverse crosslay hose bed. Each flap will be secured with shock cords, on each side, and footman's loops on the opposite side. The permanent footman's loops will be located opposite of the terminating crosslay outlet pipe allowing best access at each side. The color of the vinyl skirts will be black. A quantity of three (3) crosslay bed(s) will require these end skirts.
0029260	Not Required, Speedlays	
0750536	Hose Restr, Spdly, Not Required, No Spdly	
0590875	Hose Restraint, Crosslay/Deadlay, Aluminum Treadplate, Bi-Fold, Top Only	<b>CROSSLAY COVER</b> A bi-fold aluminum treadplate cover, hinged at the front will be installed over the top of the crosslay/deadlay(s). It will include a latch at each end of the cover to hold it securely in place, a chrome grab handle at each end for opening and closing the cover and a foam rubber gasket where the cover comes into contact to a painted surface. The cover will be provided with rubber latch hold open device.
0688927	Reel, Booster, Aluminum - Over Pump, Left Side	<b>BOOSTER HOSE REEL</b> A Hannay electric rewind booster hose reel will be installed over the pump in a recessed open compartment on the left side of the apparatus. The reel will be fabricated of aluminum and have highly polished end discs. A polished stainless steel roller and guide assembly will be mounted on the reel side of the apparatus. Discharge control will be provided at the pump operator's panel. Plumbing to the reel will consist of 1.50" Aeroquip hose and a 1.50" valve.
0011060	Switch, Reel Rewind - One at Pump Panel	Reel motor will be protected from overload with a circuit breaker rated to match the motor. An electric rewind control switch will be installed on the reel side pump panel.

0005300	Hose, Booster - 150' of 1.00"/800 PSI	Booster hose, 1.00" diameter and 150 feet, with chrome plated Barway, or equal couplings will be provided. Working pressure of the booster hose will be a minimum of 800 psi.	Item 1.
0017858	Capacity, Hose Reel 150' of 1"	Capacity of the hose reel will be 150 feet of 1.00" booster hose.	
0007428	Nozzle for Booster Reel Not Req'd		

**HUSKY 3 FOAM PROPORTIONER**

A Pierce Husky® 3 foam proportioning system will be provided. The Husky 3 is an on demand automatic proportioning, single point, direct injection system suitable for all types of Class B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foam concentrates. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically proportion foam solution at rates from .1 percent to 3 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.

Item 1.

The design of the system will allow operation from draft, hydrant, or relay operation.

**System Capacity**

The system will have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi.

100 gpm @ 3 percent  
300 gpm @ 1 percent  
600 gpm @ 0.5 percent

Class A foam setting in 0.1 percent increments from 0.1 percent to 1 percent. Typical settings of 1 percent, 0.5 percent and 0.3 percent (maximum capacity will be limited to the plumbing and water pump capacity).

**Control System**

The system will be equipped with a digital electronic control display located on the pump operator's panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, and to set the operation modes.

The percent of injection will have a preset. This preset can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

Three (3) .50 tall LEDs will display the foam percentage in numeric characters. Three (3) indicator LEDs will also be included, one (1) green, one (1) red, and one (1) yellow. The LEDs will indicate various system operation or error states.

The indications will be:

Solid Green - System On  
Solid Red - Valve Position Error  
Solid Yellow - Priming System  
Flashing Green - Injecting Foam  
Flashing Red - Low Tank Level  
Flashing Yellow - Refilling Tank

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

**Hydraulic Drive System**

The foam concentrate pump will be powered by an electric over hydraulic drive system. The hydraulic system and motor will be integrated into one (1) unit.

**Foam Concentrate Pump**

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

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

The foam concentrate pump will have minimum capacity for 3 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system will deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

**External Foam Concentrate Connection**

An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty, or the use of foam different than the foam in the foam tank.

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

A bronze three (3)-way valve will be provided. The unit will be mounted to the pump panel. The valve unit will function as the foam system tank to pump valve and external suction valve. The external foam pick-up will be one (1) 0.75" male connection GHT (garden hose thread) with a cap.

**Pick-Up Hose**

A 0.75" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 0.75" female swivel GHT (garden hose thread) swivel connector. The hose will be shipped loose.

**Discharges**

The foam system will be plumbed to the hose reel in left side of dunnage area, front crosslay, center crosslay, rear crosslay and right side outlet.

**System Electrical Load**

The maximum current draw of the electric motor and system will be no more than 55 amperes at 12 VDC.

0592527	Refill, Foam Tank, Integral, Husky 3	<b>SINGLE FOAM TANK REFILL</b> The foam system's proportioning pump will be used to fill the foam tank. This will allow us auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller. While the proportioner pump is filling the tank, the controller will display a flashing yellow LED to indicate that the tank is filling. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will shut the yellow LED off. If it attempted to use tank fill and the refill valve and suction valve are in the wrong position(s), then a red LED will illuminate to indicate the improper valve position(s). When the valves are positioned properly, then filling will commence.	Item 1.
0031896	Demonstration, Foam System, Dealer Provided		
0005446	Foam Cell, 20 Gallon, Not Reduce Water	<b>FOAM TANK</b> The foam tank will be an integral portion of the polypropylene water tank. The cell will have a capacity of 20 gallons of foam with the intended use of Class A foam. The foam cell will not reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid.	
0697589	Drain, 1.00", Foam Tank #1, Husky 3 Foam System, Quarter Turn	<b>FOAM TANK DRAIN</b> The foam tank drain will be a 1.00" quarter turn drain valve located inside the pump/plumbing compartment.	
0091079	Not Required, Foam Tank #2		
0091112	Not Required, Foam Tank #2 Drain		
0738072	Approval Dwg, Pump Panel(s), Not Required		
0032479	Pump Panel Configuration, Control Zone	<b>PUMP PANEL CONFIGURATION</b> The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.	
0672136	SP Step, Slide-Out Pump Op. Platform (Aerial), 12.00" Deep	<b>PUMP OPERATOR'S PLATFORM</b> A pull out 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 bright aluminum treadplate with a Morton Cass insert. The platform will be 12.00" deep and 35.00" wide. The platform will lock in the retracted and the extended position. The sides, bottom and rear portions of the support assembly shall be painted to match lower job color. 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	<b>PUMP OPERATOR'S PLATFORM PERIMETER LIGHT</b> 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	<b>PUMP AND GAUGE PANEL</b> 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	<b>PUMP ACCESS</b> <b>Right Side Panel</b> The right side upper pump panel will be removable. <b>Panel Fastener</b> The removable panels will be secured with black swell 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, WIn 3SC0CDCR LED White	<b>PUMP COMPARTMENT LIGHT</b> 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.	

0586382	Gauges, Engine, Included With Pressure Controller	Engine monitoring graduated LED indicators will be incorporated with the pressure controller. Also provided at the pump panel will be the following: - Master Pump Drain Control	Item 1.
0005601	Throttle, Engine, Incl'd w/Press Controller		
0739224	Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle,Green	<b>THROTTLE READY GREEN INDICATOR LIGHT</b> 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.	
0549333	Indicators, Engine, Included with Pressure Controller		
0745568	Indicator Light, Pump Panel, Ok To Pump, Green	<b>OK TO PUMP INDICATOR LIGHT</b> 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.	
0553643	Control, Air Horn at Pmp Pnl, Red Switch	<b>AIR HORN SWITCH</b> An air horn control switch will be provided at the pump operator's control panel. This switch will be red and properly labeled. The switch will be located within easy reach of the operator in the electrical switch panel.	
0009227	Gauges, 6.00" Master, Class 1, Special	<b>VACUUM AND PRESSURE GAUGES</b> 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.	
0008637	Gauge, 2.50" Pressure, Class 1, Special	<b>PRESSURE GAUGES</b> The individual "line" pressure gauges for the discharges will be intertube filled and manufactured by Class 1©. They will be a minimum of 2.50" in diameter and the dial will have white faces with black markings. Gauges will have a pressure rating of 0-300 psi. The individual pressure gauge will be installed as close to the outlet control as practical.	
0607159	Gauge, Water Level, FRC, WLA 300-A00, TankVision Pro	<b>WATER LEVEL GAUGE</b> A Fire Research TankVision Pro model WLA300-A00 water tank indicator gauge will be installed on the pump operators panel. The gauge kit will include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The gauge will show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs will provide for a viewing angle of 180 degrees. The gauge case will be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label. The program features will be accessed from the front of the indicator module. The program will support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low water warnings will include flashing LEDs at 1/4 tank and down chasing LEDs when the tank is almost empty. The gauge will receive an input signal from an electronic pressure sensor. The sensor will be mounted from the outside of the water tank near the bottom. No probe will be placed on the interior of the tank. Wiring will be weather resistant and have automotive type plug-in connectors.	



0604354	Gauge, Foam Level, FRC, Tank Vision Pro, WLA 360-A00, Class "A"	<p><b>CLASS "A" FOAM LEVEL GAUGE</b></p> <p>A Fire Research TankVision Pro model WLA360-A00 cell/tank level indicator kit will be installed on the pump operators panel. The kit will include an electronic indicator module, a pressure sensor, a 10' sensor cable and a tank vent. The indicator will show the volume of Class "A" foam concentrate in the cell/tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs will provide for a viewing angle of 180 degrees. The indicator case will be waterproof, manufactured of Polycarbonate/Nylon material and have a distinctive green label. The program features will be accessed from the front of the indicator module. The program will support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display cell/tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low foam level warnings will include flashing LEDs at 1/4 cell/tank and down chasing LEDs when the cell/tank is almost empty. The indicator will receive an input signal from an electronic pressure sensor. The sensor will be mounted from the outside of the foam cell/tank near the bottom. No probe will be placed on the interior of the cell/tank. Wiring will be weather resistant and have automotive type plug-in connectors.</p>
0593161	Light Shield, S/S LED	<p><b>LIGHT SHIELD</b></p> <p>There will be a polished, 16 gauge stainless steel light shield installed over the pump operator's panel.</p> <p>There will be 12 volt DC white LED lights installed under the stainless steel light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house. One (1) pump panel light will come on when the pump is in ok to pump mode. There will be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel.</p>
0682488	Light Shield, S/S, PS LED	<p><b>ADDITIONAL LIGHT SHIELD</b></p> <p>An additional polished, 16 gauge stainless steel light shield will be provided above passenger's side pump panel.</p> <p>There will be 12 volt DC white LED lights installed under the light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.</p>
0606694	Air Horns, (2) Hadley, 6" Round, eTone, In Bumper	<p><b>AIR HORN SYSTEM</b></p> <p>Two (2) Hadley®, eTone, chrome air horns will be recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.</p>
0606834	Location, Air Horns, Bumper, Each Side, Outside Frame, Inboard (Pos #2 & #6)	<p><b>Air Horn Location</b></p> <p>The air horns will be located on each side of the bumper, just outside of the frame rails.</p>
0757092	Control, Air Horn, Multi Select	<p><b>Air Horn Control</b></p> <p>The air horn(s) will be activated by the following:</p>
0757081	Control, Air Horn, Ft Sw, LS	Left side foot switch
0534828	Siren, WIn 295SL101, 100 or 200W Removable Mic	<p><b>ELECTRONIC SIREN</b></p> <p>There will be a Whelen, Model 295SL 101, 100 or 200 watt electronic siren with noise canceling plug-in microphone will be provided. This siren to be active when the battery switch is on and that emergency master switch is on.</p>
0510206	Location, Elect Siren, Recessed Overhead In Console	Electronic siren head will be recessed in the driver side center switch panel.
0076157	Control, Elec Siren, Horn Ring	<p><b>SIREN CONTROL</b></p> <p>The electronic siren will be controllable on the siren head and horn ring only. No foot switches will be required. The driver will have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p>
0601306	Speaker, (1) WIn, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt	<p><b>SPEAKER</b></p> <p>There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.</p>

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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.	Item 1.
0895310	Siren, Federal Q2B	<p><b>AUXILIARY MECHANICAL SIREN</b></p> <p>There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.</p> <p>The Q2B will be chrome finish.</p> <p>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.</p> <p>The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery.</p>	
0665593	Siren, Mechanical, Recessed In Bumper, Special Recessing Depth, EF Grille	The mechanical siren will be recessed behind the front bumper on the left side. The siren will be supported by the bumper framework. The Federal, Model MSFMT-EF, grille will be used on the front bumper in place of the standard Q2B mechanical siren grille.	
0748305	Control, Mech Siren, Multi Select	<p><b>MECHANICAL SIREN CONTROL</b></p> <p>The mechanical siren will be activated by the following:</p>	
0748282	Control Mech Siren, Ft Sw LS	Left side foot switch.	
0736158	Sw, Siren Brake, Momentary, Lower Sw Pnl	A momentary switch will be included in the lower switch panel to activate the siren brake.	
0746353	Not Required, Warning Lights Intensity		
0604635	Lightbar, WIn, Freedom IV-Q, 2-21.5", RRRWR RWRRR	<p><b>FRONT ZONE UPPER WARNING LIGHTS</b></p> <p>There will be two (2) 21.50" Whelen Freedom IV LED lightbars mounted on the cab roof, one (1) on each side, above the driver's and passenger's door, facing forward.</p> <p>The driver's side lightbar will include the following:</p> <ul style="list-style-type: none"> <li>One (1) red flashing LED module in the outside end position.</li> <li>One (1) red flashing LED module in the outside front corner position.</li> <li>One (1) red flashing LED module in the outside front position.</li> <li>One (1) white flashing LED module in the inside front position.</li> <li>One (1) red flashing LED module in the inside front corner position.</li> </ul> <p>The passenger's side lightbar will include the following:</p> <ul style="list-style-type: none"> <li>One (1) red flashing LED module in the inside front corner position.</li> <li>One (1) white flashing LED module in the inside front position.</li> <li>One (1) red flashing LED module in the outside front position.</li> <li>One (1) red flashing LED module in the outside front corner position.</li> <li>One (1) red flashing LED module in the outside end position.</li> </ul> <p>There will be clear lenses included on the lightbar.</p> <p>There will be a switch in the cab on the switch panel to control the lightbars.</p> <p>The white LED's will be disabled when the parking brake is applied.</p> <p>The two (2) red flashing LED modules in the inside front and the two red flashing LED modules in the inside front corner positions may be load managed when the parking brake is applied.</p>	
0899300	Lights, Front Zone, WIn M6** M6RS M6RS M6**, Inside Steady Burn, 4Its Q Bez	<p><b>FRONT ZONE LOWER LIGHTS</b></p> <p>There will be four (4) Whelen®, 4.31" high x 6.75" wide x 1.37" deep lights installed on the cab face above the headlights, in a common bezel matching the one for the headlamps per the following.</p> <ul style="list-style-type: none"> <li>One (1) Model M6** flashing light installed in the left side outside position. The left side outside warning light to include red LEDs.</li> <li>One (1) Model M6RS steady burning light installed in the left side inside position. The light will include red LEDs.</li> <li>One (1) Model M6RS steady burning light installed in the right side inside position. The light will include red LEDs.</li> <li>One (1) Model M6** flashing light installed in the right side outside position. The right side outside warning light to include red LEDs.</li> </ul> <p>The lens color(s) to be clear.</p> <p>The housing to be polished and the trim shall be chrome.</p> <p>There will be a switch in the cab on the switch panel to control the lights.</p>	
0653937	Flasher, Headlight Alternating	<p><b>HEADLIGHT FLASHER</b></p> <p>The high beam headlights will flash alternately between the left and right side.</p> <p>There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.</p> <p>The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p>	

0540692	Lights, Side Zone Lower, WIn M6°C LED, Clear Lens, 3pr, Ovr 25	<p><b>SIDE ZONE LOWER LIGHTING</b>  There will be six (6) Whelen®, Model M6°C, flashing LED warning lights with chrome trim installed per the following:</p> <p>Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.</p> <p>Two (2) lights, one (1) each side of cab rearward of crew cab doors. The side middle lights to be red.</p> <p>Two (2) lights, one (1) each side above rear wheels. The side rear lights to be red.</p> <p>The lights will include clear lenses.</p> <p>There will be a switch in the cab on the switch panel to control the lights.</p>
0662391	Lights, Side, WIn WIONSMCD Split R/W LED, Chrome Flng,Mnt In Rub Rail 1st	<p><b>SIDE WARNING LIGHTS</b>  There will be four (4) Whelen, Model WIONSMCD split red/white LED light(s) provided and located in the body rub rails in rub rail below LS1, LS4, RS1, RS4. The lights will only be mounted with the rubber gasket if clearance allows it.</p> <p>The lens color will be clear.</p> <p>Each light will be provided with a chrome plated ABS flange.</p> <p>The light(s) will be activated with the side warning switch.</p>
0564655	Lights, Rear Zn Lwr, WIn M6°C LED, Clear Lens, For Tail Lt Housing	<p><b>REAR ZONE LOWER LIGHTING</b>  There will be two (2) Whelen®, Model M6°C, LED flashing warning lights 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 clear.</p> <p>There will be a switch located in the cab on the switch panel to control the lights.</p>
0743720	Lights, Rear/Side Up Zone, WIn M6** LED 4lts	<p><b>WARNING LIGHTS (Rear and Side upper zones)</b>  There will be four (4) Whelen®, Model M6**, 5.31" high x 6.75" wide x 1.37" deep flashing LED warning lights with chrome trim provided at the rear of the apparatus per the following:</p> <p>The side upper rear light on the left side to include red flashing LEDs</p> <p>The rear upper light on the left side to include red flashing LEDs</p> <p>The rear upper light on the right side to include red flashing LEDs</p> <p>The side upper rear light on the right side to include red flashing LEDs</p> <p>The warning light lens color(s) to be clear</p> <p>There will be a switch in the cab on the switch panel to control the lights.</p>
0006551	Not Required, Lights, Rear Upper Zone Blocking	
0743305	SP Bracket Enclosure, Lights, Triangular Shaped, Rear of Body	<p><b>BRACKETS REAR OF BODY</b>  There will be two (2) aluminum treadplate brackets installed at the rear of the apparatus, one (1) on the left side and one (1) on the right side, on the rearmost, outside edge of the body. The brackets will be triangular shaped and constructed per the following:</p> <p>The rear face of the bracket will be wide and tall enough for the rear zone upper surface mount warning light.</p> <p>The outside side face of the bracket will be long and tall enough for the side facing rear zone upper surface mount warning light.</p> <p>There will be a removable panel installed for mounting and wire access.</p>
0791467	Light, Traffic Directing, WIn TAM83, 30.87" Long LED	<p><b>TRAFFIC DIRECTING LIGHT</b>  There will be one (1) Whelen®, Model TAM83, 30.87" long x 1.75" high x 2.18" 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>
0889920	SP Location, TDL, On Top of Body Below TT w/Treadplate Box, Scene Lights & Camera	<p>The traffic directing light will be mounted on top of the body below the turntable within a treadplate box at the rear of the apparatus.</p> <p>The treadplate box will allow installation of a camera to be mounted recessed within it, centered above the traffic directing light.</p> <p>The treadplate box will allow installation of two (2) Whelen®, Summit 16.00" scene lights to be mounted recessed within it, one (1) on each side of the traffic directing light.</p> <p>The corners of the openings for the traffic advisor, camera, and scene lights will be radiused.</p>
0530282	Location, Traf Dir Lt Controller, Overhead Switch Panel DS Right End	<p>The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.</p>
0519934	Not Required, Brand, Hydraulic Tool System	
0649753	Not Required, PTO Driven Hydraulic Tool System	

Item 1.

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

Item 1.

The ladder will be constructed to meet all of the requirements as described in the current edition of applicable NFPA 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 percent 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 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 percent 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 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 0.25" 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 lb at the tip in the unsupported configuration, based upon 360 degree rotation, up to full extension and from -10 degrees to +77 degrees.

The ladder (handrails, baserails, trusses, K-braces and rungs) will be constructed of high strength low alloy steel, minimum 100,000 pounds per square inch yield, with full traceability on all structural members.

Each section will be trussed diagonally, vertically and horizontally using welded steel tubing.

All ladder rungs are round and welded to each section utilizing "K" bracing for lateral and torsional rigidity.

The inside width dimensions of the ladder will be:

Base Section:

41.87"

Lower Mid Section:

34.88"

Upper Mid Section:

27.87"

Fly Section:

21.63"

The height of the handrails above the centerline of the rungs will be:

Base Section:

26.28"

Lower Mid Section:

22.68"

Upper Mid Section:

20.06"

Fly Section:

17.32"

The ladder will be designed to provide continuous egress for firefighters and civilians from an elevated position to the ground.

The egress section will be designed to maintain the rated load of the aerial device. It will be bolted on for easy replacement. There will be a lift 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 coated with a non-skid, chemical resistant material in the walking and stepping surfaces will meet the skid-resistance requirements of the current NFPA standards. 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.

Item 1.

#### **ELEVATION SYSTEM**

Dual 5.50" diameter elevating cylinders will be mounted on the underside of the base section of the ladder, one (1) on each side. One (1) 2.25" diameter stainless steel pin will fasten each cylinder to the ladder and one (1) 2.50" diameter stainless steel pin will fasten each cylinder to the turntable. The pins will have 125,000 psi minimum yield strength and will be secured with 0.50" Grade 8 bolts with castle nut and cotter pin. The bolts are to ensure that the pins do not walk out of the mounting brackets on the turntable and base section.

The elevating cylinders will be mounted utilizing maintenance-free spherical bearings on both ends of the cylinders. The aerial base pivot bearings will be maintenance-free type bearings with no external lubrication required. **The cylinders will function only to elevate the ladder and not as a structural member to stabilize the ladder side movement. The elevating cylinders will be provided with pilot-operated check valves on the barrel and rod side of the piston to prevent movement of the ladder in case of a loss of hydraulic pressure.**

The operation envelope will be 10 degrees below horizontal to 77 degrees above horizontal.

The elevation system will be designed following NFPA standards. The elevation hydraulic cylinders will incorporate cushions on the upper limit of travel.

The lift cylinders will be equipped with integral holding valves located in the cylinder to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves will NOT be located in the transfer tubes.

The elevation system will be controlled by the microprocessor. Linear transducers will measure the extension of the elevation cylinder. The microprocessor will provide the following features:

Collision avoidance of the elevation system to prevent accidental body damage  
Automatic deceleration when the aerial device is lowered into the cradle  
Automatic deceleration at the end of stroke, in maximum raise and lower positions  
Deceleration of the aerial device at the limits of travel.

#### **EXTENSION/RETRACTION SYSTEM**

A hydraulically powered, extension and retraction system will be provided through dual hydraulic cylinders and wire ropes. Each set will be capable of operating the ladder in the event of a failure, of the other. The extension cylinder rod will be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders will be equipped, with integral holding valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves will NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The extension/retraction system will be controlled by the microprocessor. Linear transducers will measure the ladder extension. The microprocessor will provide the following features:

Automatic deceleration at the end of stroke, in maximum extend and retract positions  
All sheaves will require lubrication. They will have bronze bushings and grease zerks.

#### **MANUAL OVERRIDE CONTROLS**

Manual override controls will be provided for all aerial and stabilizer functions.

#### **LADDER SLIDE MECHANISM**

UHMW polyethylene wear pads will be used between the telescoping ladder sections, to provide greater bearing surface area for load transfer. Adjustable slide pads will be used to control side play between the ladder sections.

#### **ROTATION SYSTEM**

The aerial will be supplied with a powered rotation system as outlined in NFPA standards. The hydraulic rotation motor will provide continuous rotation under all rated conditions and be supplied with a brake to prevent unintentional rotation. One (1) hydraulically driven, planetary gear box with drive speed reducers will be used to provide infinite and minute rotation control throughout the entire rotational travel. One (1) spring applied, hydraulically released disc type swing brake will be furnished to provide positive braking of the turntable assembly. Provisions will be made for emergency operation of the rotation system should complete loss of normal hydraulic power occur. The hydraulic system will be equipped with pressure relief valves which will limit the rotational torque to a nondestructive power. The gearbox will have a minimum continuous torque rating of 80,000 in. lbs. and a minimum intermittent rating of 160,000 in. lbs. The turntable bearing, ring gear teeth, pinion gear, planetary gearbox, and output shaft will be certified by the manufacturer of the components for the application.

The rotation system will be controlled by the microprocessor. The microprocessor will provide the following features:

Collision avoidance to prevent accidental body damage  
Prevent the aerial from being rotated into an unstable condition.

#### **ROTATION INTERLOCK**

The microprocessor will be used to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor will allow full and unrestricted use of the aerial, in the 180 degree area, on the side(s) where the stabilizers have been fully deployed. The system will also have a manual override to comply with the current edition of applicable NFPA standards.

#### **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 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..

Item 1.

**AERIAL TORQUE BOX/PEDESTAL**

The pedestal assembly will be a welded assembly made of high strength 0.25" plate. The vertical member will be a 0.375" reinforced wall cylinder with a 28.00" outside diameter and will connect the rotation bearing mounting plate to the lower substructure. The pedestal assembly will be bolted to the chassis frame with 0.88" diameter Grade 8 bolts, and will be utilized to mount the outrigger jacks and reservoir for the aerial hydraulic system.

There will be a 5/8" gap between the torque box and the frame rails to promote drying of the surfaces and reduce the effect of corrosion.

**LOAD CAPACITIES**

The following load capacities will be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities will be based upon full extension and 360 degree rotation. A load chart, visible at the operator's station, will be provided. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension.

**50 MPH WIND CONDITIONS/WATERWAY DRY**

**Degrees of Elevation**

- 10 to 9
- 10 to 19
- 20 to 29
- 30 to 39
- 40 to 49
- 50 to 59
- 60 to 69
- 70 to 77

**Egress**

- 750
- 750
- 750
- 750
- 750
- 750
- 750

**Fly**

-

-

-

-

-

250

500

750

**Upper Mid**

-

-

-

-

250

500

1000

1000

**Lower Mid**

-

-

-

-

500

750

1000

1000

1000

1000

1000

1000

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  
500  
Fly  
-  
-  
-  
-  
-  
250  
500  
500  
Upper Mid  
-  
-  
-  
-  
250  
500  
750  
1000  
Lower Mid  
-  
-  
-  
250  
500  
750  
1000  
1000  
Base  
-  
-  
250  
500  
750  
1000  
1000  
1000

*Reduced loads at the tip can be redistributed in 250 lb increments to the fly, mid, or base sections as needed.*  
*The tip capacity will be reduced to zero when flowing water with the nozzle above the waterway centerline.*  
*Side to side monitor travel will be reduced with a 50 mph wind rating on the device.*  
**BOOM SUPPORT**  
*A heavy-duty boom support will be provided for support of the ladder in the travel position. On the base section of the ladder, a stainless steel scuffplate will be provided where the ladder comes into contact with the boom support.*

0000042	Boom Support, Rear of the Chassis Cab	The boom support will be located just to the rear of the chassis cab.
0762413	Light, Boom Support, Amdor AY-LB-12HW012, 12" LED	<b>AERIAL BOOM SUPPORT LIGHT</b> 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.
0799560	Boom Support Compartment, Not Required	
0680821	Boom Panel, Pair	<b>AERIAL BOOM PANEL</b> There will be one boom panel provided on each side of the aerial ladder base section. The boom panel will be painted #90 red. The boom panels will be designed so no mounting bolts are in the face of the panel. This will keep the lettering surface free of holes.
0526885	Indicator, Extension, Inside and Outside Handrails, Every 10'	<b>EXTENSION INDICATOR</b> 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	<p><b>FOLDING STEPS</b></p> <p>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 tread coating on the stepping surface. Each step will have no integrated light.</p>	Item 1.
0688232	Rung Covers, Aerial Device	<p><b>AERIAL DEVICE RUNG COVERS</b></p> <p>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.</p>	
0642654	Scabbard, Temporary Vent Saw Storage, No Depth Gauge, Aerial Ladder, Painted	<p><b>TEMPORARY SCABBARD AT END OF AERIAL</b></p> <p>There will be a total of two (2) vent saw scabbard(s) provided. The scabbard(s) will be mounted on each side of the aerial egress. The scabbard(s) will be painted smooth aluminum. The scabbard(s) will be painted black 101.</p>	
0784202	Brackets Only, Roof Ladder, Base Section, Inboard of Boom Panel, Ascendant	<p><b>LADDER STORAGE MOUNTING BRACKETS</b></p> <p>Mounting brackets for a single roof ladder will be provided on the right side of the aerial device while viewed from the turntable. A total of one (1) roof ladder(s) will be stored on the aerial base section. The bracket(s) will be located inboard of the boom panel at the base section and include straps to secure the ladder(s). The mounting brackets will accommodate a 14' Duo-Safety 875-DR roof ladder(s) to be stored individually as determined by the type of aerial device and the available space.</p>	
0623645	Aerial Stability Test, Maximum Tip Options	<p><b>STABILITY TEST</b></p> <p>An aerial stability test will be run on the apparatus using the maximum weight allowance for tip options.</p>	
0601972	Lights, Turntable Walkway, P25, LED	<p><b>LIGHTS FOR TURNTABLE WALKWAY</b></p> <p>There will be white LED lights provided at the aerial turntable. The lights will be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights will be activated by the aerial master switch.</p>	
0601949	Light, Turntable Console, TecNiq T-10, LED Strip Light	<p><b>TURNTABLE CONSOLE LIGHTING</b></p> <p>There will be one (1), TecNiq Model T10, white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights will be activated by the aerial master switch.</p>	
0618442	SP Turntable Handrails, Painted	<p><b>PAINTED TURNTABLE HANDRAILS</b></p> <p>The turntable handrails will be painted #101 black. The handrail tee's and elbows will remain chrome plated.</p>	
0682164	Cover, Around Aerial Rotation Bearing	<p><b>ROTATION BEARING COVER</b></p> <p>A cover will be fitted over the aerial rotation bearing and drive pinion gear(s). The cover will be smooth aluminum painted to match aerial turntable and attached to the underside of the turntable deck.</p>	
0814217	Control Stations, ASL Tandem Axle, MUX, Color Display, CL714	<p><b>INFORMATION CENTER</b></p> <p>There will be an information center provided. The information center will operate in temperatures from -40 to 158 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 1000nits rated, color display. The LCD will be sunlight readable. The LCD display will be encased in an ABS, gray plastic housing with a Pierce decal. There will be five (5), weather-resistant user interface switches provided. The LCD display can be changed to an available foreign language.</p> <p><b>OPERATION</b></p> <p>The information center will be designed for easy operation in everyday use. There will be a page button to cycle from one screen to the next screen in a rotating fashion. A video button will allow an NTSC signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center will return to the vehicle information screens. There will be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels will be specific to the information being viewed.</p> <p><b>GENERAL SCREEN DESIGN</b></p> <p>Where possible, background colors will be used to provide vehicle information <i>At A Glance</i>. If the information provided on a screen is within acceptable limits, a green background color will be used. If the information provided on a screen is not within acceptable limits, an amber background color will indicate a caution condition and a red background color will indicate a warning condition.</p> <p>Every screen in the information center will include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time will be synchronized between all Command Zones.</p>	



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 10 seconds 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.

Item 1.

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.

#### **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).
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Aerial Reach and Hydraulic Systems page will indicate the following information:

- Aerial Hydraulic Oil Temperature will be indicated with symbol and text. *At a glance* features will be utilized.
- Aerial Hydraulic Oil Pressure will be indicated with a symbol and text. *At a glance* features will be utilized.
- The following calculations will be indicated on a representative vehicle symbol:
  - Aerial Device Extension length.
  - Aerial Device Height indicating the height of the aerial device tip from the ground.
  - Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable.
  - Aerial Device Angle indicating the angle from the vehicle which the device is at.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Level Vehicle page will indicate the following information:

- The grade of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol will tilt dependent on the vehicle grade.
- The slope of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol will tilt dependent on the vehicle slope.
- Outriggers status will be indicated via a colored symbol for each outrigger present. Each outrigger status will be defined as one of the following:
  - Outrigger stowed indicated with a silver pan located close to the vehicle
  - Outrigger fully extended indicated with a fully deployed green outrigger
  - Outrigger short-jacked indicated by a yellow outrigger partially deployed
  - Outrigger not set indicated by a red outrigger that is not set on the ground
- A text box located on the vehicle symbol will be utilized to identify the overall status of the outrigger leveling system. The following status will be indicated in the text box:
  - Deployed status will indicate all outriggers are properly set on the ground at full extension
  - Shortjacked status will indicate one or more outriggers are set on the ground but not fully extended.
  - Not Set status will indicate one or more outriggers is not properly set on the ground.
  - Stowed status will indicate all outriggers are stowed for vehicle travel.
- A bedding assist alert will indicate that the aerial device is being aligned by the Command Zone system as the operator lowers the aerial device into the cradle with the joystick.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

#### **MENU SCREENS**

The following screens will be available through the Menu button:

The View System Information screen will display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

The Set Display Brightness screen will allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen will allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that will be active at vehicle power-up.

The Set Date and Time screen has a 12- or 24-hour format, and allows setting of the time and date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and it's respective inputs and outputs. Viewable data will include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial calibrations screen indicates items that may be calibrated by the user and instructions t

follow for proper calibration of the aerial device.  
Button functions and button labels may change with each screen.

Item 1.

#### **LOWER CONTROL STATION**

A lower control station will be located at the rear of the apparatus in an easily accessible area. The controls and indication labels will be illuminated for nighttime operation. The following items will be furnished at the lower control station and will be clearly identified and conveniently located for ease of operation and viewing:

- Level assist switch
- Override switch to override microprocessor
- Emergency power unit switch

#### **TURNTABLE CONTROL STATION**

There will be one (1) device control station located on the left side of the turntable so the operator may easily observe the ladder tip while operating the controls. All elevation, extension and rotation controls will operate from this location. The controls will permit the operator to regulate the speed of the aerial functions, within the safe limits, as determined by the manufacturer and NFPA standards. Each control will be equipped, with a positive lock to hold the control in a neutral position, preventing accidental activation. In addition to the neutral lock, a console cover will be provided at the turntable control station. The controls will be so designed to allow the turntable control station to immediately override the tip controls, if equipped, even if the ladder is being operated by the tip controls.

The following items will also be provided at the turntable control station, clearly identified, lighted for nighttime operation and conveniently located for ease of operation and viewing:

- Intercom controls
- Tip tracking light switch
- Emergency stop switch
- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed

#### **HIGH IDLE**

The high idle will be controlled by the microprocessor. The microprocessor will automatically adjust the engine rpm to compensate for the amount of load placed upon the system. The system will include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

**STABILIZERS**

The vehicle will come equipped with a stabilization system consisting of four (4) hydraulic operated stabilizers. The front two (2) will be out and down style, the rear two (2) will be only. This system will meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.

Item 1.

The stabilizer/leveling jacks will have a maximum spread of 16' measured from the centerline of the jack footpads when the beams are fully extended. The beams will be 6.88" wide x 9.00" high with 3/4" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders will have pilot-operated check valves with thermal relief designed to insure that the beams will not drift out of the stowed position during travel. Wear pads will guide the stabilizers.

The horizontal extension cylinders will be totally enclosed within the beams and will incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer hydraulic hoses will remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders will be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted and extended positions. The stabilizer extension hydraulic cylinders will have the following dimensions: 2.25" bore, 1.38" rod, and 39.25" stroke.

The vertical jack cylinders will be capable of 18.00" ground penetration. The cylinders will be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves will be located in the cylinder base, NOT in the transfer tube. Vertical jack cylinder rods will be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders will have the following dimensions: 4.25" bore, 3.00" rod, and 28.88" stroke.

Each stabilizer jack will have a pan that shall be a maximum of 14.00" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This pan will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back 90 degrees for added strength.

**STABILIZER PADS**

The stabilizer footpad will be 12.00" in diameter. The footpad will be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad will have the ability to pivot 20 degrees from horizontal in any direction to allow setup on uneven terrain.

**AUXILIARY STABILIZER PADS**

An auxiliary ground pad will be supplied for each stabilizer to provide additional load distribution on soft surfaces. The pads will be 31" x 26" and made from lightweight composite material. The ground pressure will not exceed 75 pounds per square inch when the ground pads are used and the apparatus is fully loaded and the aerial device is carrying its rated capacity in any position. The pads will be stored in a double stacked configuration, two (2) behind each rear tandem axle in a single bracket.

**STABILIZER CONTROLS**

One (1) electric solenoid valve will control the stabilizers. The control switches will be located one (1) each side at the rear of the apparatus so the operator may observe the stabilizers during deployment.

The stabilizer controls will include the following:

- Four (4) electric toggle switches for stabilizers: each toggle switch will control the extend/retract (front only) and raise/lower of its respective stabilizer to allow vehicle set up in restricted areas and/or on uneven surfaces.
- Auto leveling assist switch: The outrigger control system will incorporate a computerized self leveling system in addition to the standard outrigger controls. The operator will have the option to manually or automatically level the truck. The computerized system will ensure full outrigger extension, proper jack penetration, and will level the vehicle within 1/2 a degree of level for safe operation of the aerial device.
- One (1) electric toggle switch for the engaging the emergency power unit.
- One (1) red "stabilizer not stowed" indicator light: this light will illuminate when the stabilizers are not in the fully stowed position.
- Two (2) fully extended beams green indicator lights: these lights will be illuminated when each of the respective stabilizer beams are fully extended.
- Four (4) firm on ground green indicator lights: each light will be illuminated when its respective stabilizer shoe is in the load supporting condition.

Each toggle switch will activate the engine fast idle automatically.

Manual override will be supplied for each stabilizer control valve.

A stabilizer deployment audible warning alarm will be provided and activated by the stabilizer movement.

A "Stabilizers Not Stowed" indicator will be provided in the driver's compartment. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system will also be wired to the "Do Not Move Indicator Light", which will flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.

**CRADLE INTERLOCK SYSTEM**

A cradle interlock system will be provided, to prevent the lifting of the aerial from the nested position, until the operator has positioned all the stabilizers in a load supporting configuration. A switch will be installed at the cradle, to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

**STABILIZER PAN AND TRIM MATERIAL**

The aerial stabilizer pans will be smooth aluminum, painted to match the lower body color and the aerial stabilizer trim will be painted to match lower body color.

0809973

Doors, Stabilizer Control Box,  
Controls Each Side MUX Aerials

**STABILIZER CONTROL BOX DOORS**

A vertically hinged smooth aluminum door will be provided over each stabilizer control box. The door will be hinged along the outboard edge and be provided with a Southco C2 chrome trigger lever latch.

Item 1.

0615058

Stabilizer Placement, Cameras  
w/Command Zone Color Display, 1  
Set

**STABILIZER PLACEMENT**

There will be two (2) cameras provided and installed on the body, one (1) directly above each stabilizer. The cameras will be activated with a switch in the cab and will provide a picture to specify the fully extended stabilizer position allowing the driver the ability to position the vehicle with the proper clearance for stabilizer deployment.

0793039

Hydraulic System, Ascendant  
Tandem Axle

**HYDRAULIC SYSTEM**

All hose assemblies will be assembled and crimped by the hose manufacturers certified technician.

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.

All hydraulic fittings and tubing will be plated to minimize corrosion.

The fitting will use an O-ring seal where possible to minimize hydraulic leaks.

An interlock will be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard.

The system will meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial will comply with current NFPA 1901 standards and have burst strength of 4:1.

Dynamic sealing components whose failure could cause aerial movement will have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.

All hydraulic hoses, tubes, and connections will have a minimum burst strength of 4:1 per the current NFPA 1901 standard.

A chassis mounted positive displacement piston pump for consistent pressure and rapid responses will supply hydraulic power for all aerial operations. The positive displacement pump will provide 3,150psi. The hydraulic pump will be solely dedicated to aerial operations.

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 lines to permit component servicing without draining the oil reservoir.

The aerial will incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.

Hydraulic power to the ladder will be transferred from the pedestal by a hydraulic swivel.

The system hydraulic pressure will be displayed on the turntable display.

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.

**POWER TAKEOFF/HYDRAULIC PUMP**

The apparatus will be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump will meet all the requirements for the aerial unit operations.

An amber indicator light will be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.

An interlock will be provided that allows operation of aerial power only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.

The hydraulic system will be supplied by a variable displacement load and pressure compensating piston pump. The pump will meet the demands of all three simultaneous aerial functions. The pump will provide proper flow for single aerial function with the engine at idle speed. A switch will be provided on the control console to increase the engine speed for multiple function operation.

**EMERGENCY PUMP**

The hydraulic system will be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.

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 electrically controlled and be located in the control console.

console with the handles oriented downward for manual operation. The activation handles will be spaced a minimum of 3.50" for ease of operation. The valve spools will be designed to bleed downstream pressure, in the neutral position and allow proper sealing of any cylinder hold cartridge.

Item 1.

**OIL RESERVOIR**

The oil reservoir will have a minimum capacity of 38 gallons. The oil fill location will be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. The fill will have a desiccant breather filter with a water capacity of 4 fluid ounces and a 5 micron rating. A drain hose will be included and will terminate with a quarter turn ball valve.

Two suction ports will be provided, one for the main hydraulic pump and one for the emergency pump. The main suction will be slightly elevated off the bottom of the reservoir and include a 100 mesh suction strainer. The emergency suction port will be closer to the bottom of the reservoir to provide some reserve oil for emergency operation.

A six (6) disc type magnetic drain will also be provided to collect any ferrous contaminants. A float type sending unit in the reservoir will provide an indication of oil level on an electronic display. A temperature sending unit in the reservoir will provide indication of the oil temperature on an electronic display.

The hydraulic oil reservoir will be labeled per the current edition of NFPA 1901 standard.

**RETURN FILTER**

The low pressure oil return filter will be integrated with the hydraulic manifold and designed to prevent oil loss during filter change. A 50 psi bypass will be included to protect the element and hydraulic system during lower than normal operating temperatures. The system will incorporate the following filter to provide dependable service:

return filter: beta 200 at 6 micron

0793037

Swivels, D-Series w/Encoder, ASL-Tandem/Tiller, MUX (28 Collector Rings)

**HYDRAULIC SWIVEL**

The aerial ladder will be equipped with a three (3) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel will allow for 360 degree continuous rotation of the aerial.

**ELECTRIC SWIVEL**

The ladder will be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 28 collector rings will be provided that are capable of supplying 30 amp continuous service. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone will be used.

**12-BIT ABSOLUTE ENCODER**

The aerial ladder will be equipped with a 12-Bit Absolute Encoder which provides 4096 counts per shaft turn for position and direction reference.

The 12-Bit Absolute Encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation.

If the power is interrupted for any reason, the 12-Bit Absolute Encoder will allow power to be returned to the system without having to re-zero the settings.

The 12-Bit Absolute Encoder will be an integral part of a micro-processor based control system.

**ELECTRICAL SYSTEM**

The standard 8 conductor cable to the tip contains 10 AWG conductors.

The 107' heavy duty ladder will utilize a microprocessor-based control system. The system consist of the following components:

Item 1.

A tethered stabilizer control will be provided. The tethered control will be weatherproof and oil resistant. A Super Bright LED indicator light will be labeled on a metal photo panel for each function. The electrical connection at the tethered control will be permanently attached by a strained relieved coil cord that will allow the operator to move 14' away from the electrical connection for operation.

Remote Stabilizer Controls

Weatherproof and oil resistant

One (1) green "power" indicator light

One (1) red "stabilizer not stowed" indicator light

One (1) electric toggle switch for auto level assist

One (1) electric toggle switch for the emergency power unit

One (1) electric toggle switch for each stabilizer to control:

Extend/retract function (front only)

Raise/lower function

One (1) green "stabilizer fully extended" indicator light for each front stabilizer

One (1) green "firm on ground" indicator light for each stabilizer

**Control System Modules**

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

Sealed to a NEMA 4 rating

Operating range from -40 degrees F to 185 degrees F (-40 degrees C to 85 degrees C)

Communicate using J1939 data link

Two (2) diagnostic LED light

One (1) green light that illuminates when module has power (B+) and ground

One (1) red light that flashes to indicate the module is capable of communicating via the data link

Ground matrix identification system

The following control system modules 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)

Constant Current Module

Built-in fault sensing

Three (3) analog inputs

Eight (8) digital outputs

Pulse width modulating (PWM) capable

3A continuous per output

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

Closed Loop System

Input Module

16 software selectable (digital or analog) inputs

Output Module

16 digital outputs

Input/Output Module

Eight (8) software selectable (digital or analog) inputs

Eight (8) digital outputs

0804781 Aerial Scene Lts Separated into  
Aerial Tip Category and Aerial  
Tracking Category

0721558 SP Lights, Tip, WIn MPB\* LED, ASL 4lt **TIP LIGHT**

There will be four (4) Whelen® Model MPB\*, 5,695 lumens 12 volt DC LED lights with adjustable bail mounts installed on the fly section of the aerial device below the handrail height.

One (1) light on the left side high. The left side tip light to include spot optics.

One (1) light on the left side low. The left side lower tip light to include wide flood optics.

One (1) light on the right side low. The right side lower tip light to include wide flood optics.

One (1) light on the right side high. The right side tip light to include spot optics.

The painted parts of this light assembly to be black.

The lights will be controlled with the tracking lights.

0802753 Lights, Tracking, WIn MP\*\* LED, 2lts

**TRACKING LIGHTS**

There will be two (2) Whelen® MP\*\*, 5,695 lumens 12 volt DC LED lights installed on the base section of the aerial device below the hand rails per the following:

One (1) will be located on the left side with left side tracking light to include spot optics.

One (1) will be located on the right side with spot optics.

The light(s) to be installed on adjustable bail bracket(s).

The painted parts of this light assembly to be black.

The tracking lights will be controlled by a switch located at the platform/tip and turntable.

0653677	Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid, Fly	<p><b>LIGHTING ON AERIAL LADDER</b></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 ladders along the lower rail of the ladder sections and will run the length of the ladder sections. The color of the sections will be:</p> <p>The base section of the ladder to be red.  The lower mid section of the ladder to be red.  The upper mid section of the ladder to be red.  The fly section of the ladder to be red.</p> <p>The LED rung lighting will be activated when a switch at the turntable operator's panel is activated through the aerial master.  The lights may be load managed when the parking brake is applied.</p>	Item 1.
0616374	Light, Locator, Wln M2W** At Tip, Facing Out, PAL/PAP, 2lts	<p><b>AERIAL LED LOCATOR LIGHT</b></p> <p>There will be two (2) Whelen®, Model M2W**, 12 volt flashing LED lights installed at the aerial tip facing out when the aerial boom is in the stowed position. There will be one (1) light on the driver's side and one (1) light on the passenger's side.  The color of the lights will be, blue.  The warning light lens color(s) to be clear.  The light will be activated when the aerial is raised from the cradle.</p>	
0540743	Lights, Stabilizer Warn (2) Sets, Wln M6°C LED, Clear Lens	<p><b>STABILIZER WARNING LIGHTS</b></p> <p>There will be four (4) Whelen®, Model M6°C, LED flashing warning lights with Whelen, Model M6FC, chrome flanges installed, one (1) on each stabilizer cover panel.  The front stabilizer pan lights will be red LED with a clear lens  The rear stabilizer pan lights will be red LED with a clear lens  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><b>STABILIZER BEAM WARNING LIGHTS</b></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>	
0791920	Lights, Stabilizer Scene, (2) Sets, Wln 20C0CDCD LED	<p><b>STABILIZER SCENE LIGHTS</b></p> <p>There will be one (1) Whelen, Model 20C0CDCD LED scene light installed under each stabilizer beam to illuminate the surrounding area. A total of four (4) lights will be installed. These lights will be activated by the aerial master switch.</p>	
0783034	DC Power To Aerial Tip, 13.92 Amps @ 12 Volt DC, ASL	<p><b>DC POWER CABLE to TIP</b></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><b>2-WAY AERIAL COMMUNICATION SYSTEM</b></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.  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.  Each intercom unit will be weatherproof.</p>	
0540895	Not Required, Breathing Air to Tip, Aerial Ladder		
0024742	Not Required, Mask, Breathing Air To Tip		
0126600	Raised Pedestal, 3.00", Rear Mount Aerials, AXT, Velocity, Impel, Enf	<p><b>RAISED AERIAL PEDESTAL</b></p> <p>The aerial pedestal will be raised to accommodate the height of the cab.</p>	
0604457	Lifting Eye Assembly, Rope Rescue Attachment, ASL, LSL	<p><b>LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT</b></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>	

0645472	Rope Tie Bar At Base Section, for Lyfe Pulley, Painted Box, Ascendant, 105', Tiller	<p><b>ROPE TIE BAR AT BASE SECTION, RESCUE LIFTING SYSTEM</b></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 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>
0808215	Lyfe Pulley, Rescue System	<p><b>RESCUE LIFTING SYSTEM</b></p> <p>A rescue lifting attachment will be provided. The lifting attachment will mount to the aerial egress and will consist of a pair of nylatron pulleys mounted to a stainless steel shaft. The pulleys will be adjustable from side to side and will have a total lifting capacity of 750lb, regardless of whether one (1) or both pulleys are being utilized.</p>
0791128	Hitch Receiver, 10,000 lb, LS/RS, Under Body Sides, Ascendant TA, PAP/PAL	<p><b>HITCH, WINCH MOUNT</b></p> <p>A hitch receiver will be supplied at the left and right side of the vehicle aft of the rear wheels. The hitch will not interfere with the angle of departure and will be tied directly to the frame rails. The hitch will be capable of up to a 10,000 lb direct pull. Receiver plugs will be provided for the receiver when it is not in use.</p>
0530828	Turntable Access, Chains	<p><b>AERIAL TURNTABLE CHAIN</b></p> <p>A chain will be installed at the aerial turntable.</p>
0624672	Waterway, High Flow, 1500 GPM, ASL	<p><b>WATER SYSTEM</b></p> <p>A waterway system will be provided consisting of the following components and features:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>The master stream will be capable of flow up to 30 degrees above horizontal.</p> <p>An adjustable pressure relief valve will be furnished to protect the aerial waterway from a pressure surge.</p> <p>A 1.50" drain valve will be located at the lowest point of the waterway system.</p> <p><b>WATERWAY SEALS</b></p> <p>The waterway seals will be of type-B PolyPak design, composed of nitrile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals will be internally lubricated.</p> <p>The waterway seals will have automatic centering guides constructed of synthetic thermal polymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.</p>
0729475	Monitor, Akron 3486 StreamMaster II Electric, Extended Vertical Travel, w/Manual AVM	<p><b>AERIAL MONITOR</b></p> <p>An Akron Model 3486 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.</p> <p>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.</p> <p>There will be a courtesy light at the tip of the aerial to illuminate the controls.</p> <p>If the aerial has a quick-lock waterway, a limit switch will be provided to disable the extended vertical travel when the monitor is locked to the lower ladder section.</p> <p><b>AERIAL VALVE MANIFOLD UNDER MONITOR</b></p> <p>An Akron Aerial Valve Manifold (AVM) valve and manifold will be provided at the aerial waterway monitor inlet. This configuration provides a valve to control flow through the monitor and an additional valve as a discharge connection for hose.</p> <p>The AVM monitor flow control valve will be manually operated at the tip of the ladder with a slow close gear valve. The valve will have an integral automatic drain valve.</p> <p>The Akron S1 right side discharge valve will have a 90 degree, 1/4 turn ball valve with 2.50" NH outlet threads. A 2.50" NH cap with chain will be provided.</p> <p>A pressure relief valve will be installed to prevent incidental damage to the waterway system when both valves are closed.</p>

Item 1.



0010758	Flow Meter, Waterway, PAL, 110' Ascendant, MUX	<p><b>AERIAL WATERWAY FLOW METER</b> Waterway flow, including total water flowed, will be monitored by the microprocessor. An display will be located at the turntable control station.</p>	Item 1.
0004836	Inlet, 5.00" at Rear w/ Pump, Ascendant Tandem, PAP, PAL	<p><b>REAR INLET</b> A 5.00" NST inlet to the aerial waterway will be provided at the rear of the apparatus. It will be furnished with a 5.00" chrome plated adapter and a 5.00" chrome plated, long handle cap.</p>	
0673128	Quick-Lock Waterway Locking System, 100' HDL, 105' HDL, ASL	<p><b>WATERWAY LOCKING SYSTEM</b> 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.</p>	
0696916	Gauge, 4.00" Pressure, Class 1, Rear Inlet, PAL/PAP, Special	<p><b>PRESSURE GAUGE, REAR INLET</b> The "line" pressure gauge for the aerial inlet at the rear of the apparatus will be interlube filled and manufactured by Class-1. The gauge will be a minimum of 4.00" 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. Gauge will have a pressure rating of 30.00" 0-400 psi. The pressure gauge will be installed as close to the inlet as practical.</p>	
0768548	Label, Pinnable Waterway Lock, Ascendant	<p><b>QUICK-LOCK WATER WAY LOCK LABELING</b> The Quick-Lock waterway locking mechanism will be labeled "LOWER FLY" "RELEASE" "UPPER FLY". Three (3) labels will be installed on the side of the pinnable waterway release lever mounting bracket.</p>	
0047897	Tools, Aerial	<p><b>TOOLS</b> The following tools will be provided for retorquing of all specified bolts as recommended by the manufacturer: Torque Wrench All Required Extensions, Sockets and Adapters 4-to-1 Multiplier</p>	
0668583	Manuals and Training, 4 Consecutive Days, Ascendant Ladder, PAL	<p><b>MANUALS</b> 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. <b>INITIAL INSTRUCTION</b> 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 four (4) consecutive days.</p>	
0007150	Bag of Nuts and Bolts	<p><b>LOOSE EQUIPMENT</b> 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.</p>	
0650752	Stretcher, Junkin, MIL-8131W	<p><b>BASKET STRETCHER</b> There will be one (1) Junkin Model MIL-8131-W military one piece basket stretcher provided and located In LS Hatch Compt for Stokes.</p>	

0816498

NFPA Required Loose Equipment, Aerial, NFPA 2024, Provided by Fire Department

**NFPA LOOSE EQUIPMENT**

**NFPA Required Loose Equipment Provided by Fire Department**

Item 1.

The following loose equipment as outlined in NFPA 1900, 2024 edition, table 8.1 will be provided by the fire department:

One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 107, *American National Standard for High-Visibility Safety Apparel and Accessories*, 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.

Four (4) ladder belts meeting the requirements of NFPA 2500.

**NFPA Loose Equipment That Shall be Considered:**

The following loose equipment as outlined in NFPA 1900, 2024 edition, appendix table A.8.4 (a) should be considered:

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.

Four (4) SCBA apparatus

Four (4) SCBA spare cylinders

One (1) first aid kit.

Six (6) salvage covers, each a minimum size of 12 ft x 18 ft (3.6 m x 5.5 m).

Four (4) combination spanner wrenches.

Two (2) scoop shovels.

One (1) pair of bolt cutters, 24.00" (0.6 m) minimum.

One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 2500.

One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 2500.

One (1) 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) automatic external defibrillator (AED).

0519913

Not Required, Soft Suction Hose

**SOFT SUCTION HOSE**

There will be no soft suction hose provided.

0027023

No Strainer Required

0816939

Extinguisher, Dry Chemical, NFPA 2024, Provided by Fire Department

**DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

0816937

Extinguisher, 2.5 Gal. Pressurized Water, NFPA 2024, Provided by Fire Department

**WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

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

0816998

Axe, Flathead, Provided by Fire Department

**FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT**

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

0610084

Axes, (3) Pickhead, Provided by Fire Department, Aerial ULC

**PICKHEAD AXES PROVIDED BY FIRE DEPARTMENT**

CAN-ULC-S515, current edition, section 5.8.2 requires three (3) 2.7 kg (6 lb) pickhead axes. The axes are not on the apparatus as manufactured. The fire department will provide the axes.

0007494

Not Required, Sledgehammers

**PAINT PROCESS**

The exterior custom cab and body painting procedure will consist of a seven (7) step finish process as follows: Item 1.

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. The manufacturer's written paint standards will be available upon request.

**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 percent 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 percent. Water wash systems will be 99.97 percent 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.

**TWO-TONE CAB PAINT**

The cab will be painted two-tone with the upper section painted #101 black and the lower section painted #90 red. There will be a standard two-tone cab paint break provided. There will be a deep cab shield provided.

**BODY PAINT**

The body will be painted to match the lower section of the cab.

0646901	Paint Chassis Frame Assy, With Liner, E-Coat, Standard	<p><b>PAINT CHASSIS FRAME ASSEMBLY</b></p> <p>The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission as well as air brake lines, electrical wire harnesses, etc.</p> <p>Components that are included with the chassis frame assembly that will be painted are:</p> <ul style="list-style-type: none"> <li>Frame rails</li> <li>Frame liners</li> <li>Cross members</li> <li>Axles</li> <li>Suspensions</li> <li>Steering gear</li> <li>Battery boxes</li> <li>Bumper extension weldment</li> <li>Frame extensions</li> <li>Body mounting angles</li> <li>Rear Body support substructure (front and rear)</li> <li>Pump house substructure</li> <li>Steel fuel tank</li> <li>Castings</li> <li>Individual piece parts used in chassis and body assembly</li> </ul> <p>Components treated with epoxy E-coat protection prior to paint:</p> <ul style="list-style-type: none"> <li>Two (2) C-channel frame rails</li> <li>Two (2) frame liners</li> </ul> <p>The E-coat process will meet the technical properties shown.</p>
0693798	Paint, Front Wheels	<p><b>FRONT WHEELS PAINT</b></p> <p>All wheel surfaces, inside and outside, will be provided with powder coat paint #101 black.</p>
0806169	Paint, Rear Wheels, Tandem Axle, TAK-4 T3	<p><b>REAR WHEELS PAINT</b></p> <p>All wheel surfaces, inside and outside, will be provided with paint black #101.</p>
0733739	Paint, Axle Hubs	<p><b>AXLE HUB PAINT</b></p> <p>All axle hubs will be painted black #101.</p>
0013176	Smooth Finish, Two-Tone Cab Paint Break w/Shield, No Vinyl	<p><b>FINISH TWO-TONE PAINT BREAK SMOOTH, NO VINYL</b></p> <p>The two-tone paint break will be finished smooth. There will not be a vinyl stripe installed on the break.</p>
0007230	Compartment, Painted, Spatter Gray	<p><b>COMPARTMENT INTERIOR PAINT</b></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>
0782203	Aerial Ladder Paint, ASL-Tandem, LSL, E-Coat	<p><b>AERIAL DEVICE PAINT COLOR</b></p> <p>The aerial device paint procedure will consist of a six (6) step finishing process as follows:</p> <ol style="list-style-type: none"> <li>1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the aerial device structural components above the rotation point will be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.</li> <li>2. <u>Primer/Surfacer Coats</u> - A two (2) component urethane primer/surfacer will be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams will be caulked with a two (2) component epoxy caulk before painting.</li> <li>3. <u>Hand Sanding</u> - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish.</li> <li>4. <u>Sealer Primer Coat</u> - A two (2) component sealer primer coat will be applied over the sanded primer.</li> <li>5. <u>Topcoat Paint</u> - Urethane base coat will be applied to opacity for correct color matching.</li> <li>6. <u>Clearcoat</u> - 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.</li> </ol> <p>All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor.</p> <p>Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items.</p> <p>The stabilizer beams and torque box will be treated with E-coat prior to painting to help provide resistance to corrosion and chemicals. The stabilizers and torque box will be painted black.</p> <p>The aerial device components will be painted as follows using the aforementioned six (6) step finishing process:</p> <ul style="list-style-type: none"> <li>Aerial device ladder sections and extension cylinders: black 101</li> <li>Aerial egress: #90 red (will be contrasting color to the aerial device ladder)</li> <li>Aerial turntable: black 101</li> <li>Aerial control console: black 101</li> <li>Aerial lift cylinders: black 101</li> <li>Aerial boom support: gloss black primer</li> </ul>

Item 1.

0605221	SP	Reflective Band, 9"	<p><b>REFLECTIVE BAND</b> An 9.00" black reflective band will be provided across the front of the vehicle and along the top of the cab and body.</p>	Item 1.
0007356		Reflective across Cab Face	The reflective band provided on the cab face will be at the headlight level.	
0583454		Stripe, Chevron, Rear, Diamond Grade, Aerial	<p><b>REAR CHEVRON STRIPING</b> 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. Rear compartment doors, stainless steel access doors, and the rear bumper will not be covered. The colors will be red and fluorescent yellow green diamond grade. Each stripe will be 6.00" in width. This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.</p>	
0598754		Stripe, Reflective/Diamond Grade, 4.00" on Stabilizers	<p><b>REFLECTIVE STRIPE ON STABILIZERS</b> There will be a 4.00" wide fluorescent yellow diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.</p>	
0679883		Stripe, Printed Effect Gold Leaf Outline Above & Below Reflective Band	<p><b>PRINTED EFFECT GOLD LEAF STRIPE</b> There will be a printed effect gold leaf stripe applied above and below the reflective band. The printed effect gold leaf stripes will be .50" wide with an outline.</p>	
0065687		Stripe, Reflective, Cab Doors Interior	<p><b>CAB DOOR REFLECTIVE STRIPE</b> A 6.00" x 16.00" black reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel. This stripe will meet the NFPA 1901 requirement.</p>	
0679810		Stripe, Printed Effect Gold Leaf, Two-Tone Paint Break with Shield, IPO Chrome	<p><b>CAB STRIPE</b> There will be a printed effect gold leaf stripe provided on both sides of the cab in place of the chrome molding and on the cab face with shield.</p>	
0679901		Stripe, Printed Effect Gold Leaf, Box, Boom Sign with Scrolls, Aerial	<p><b>BOOM SIGN STRIPING</b> There will be printed effect gold leaf stripes along all edges of the aerial boom sign. The stripes will have an outline and a scroll at each corner.</p>	
0027372		Lettering Specifications, (GOLD STAR Process)	<p><b>LETTERING</b> The lettering will be totally encapsulated between two (2) layers of clear vinyl.</p>	
0685691		Lettering, Printed Effect Gold Leaf, 3.00", (21-40)	<p><b>LETTERING</b> Twenty-one (21) to forty (40) printed effect gold leaf lettering, 3.00" high, with outline and shade will be provided.</p>	
0685534		Lettering, Printed Effect Gold Leaf, 10.00", (21-40)	<p><b>LETTERING</b> Twenty-one (21) to forty (40) printed effect gold leaf lettering, 10.00" high, with outline and shade will be provided.</p>	
0685553		Lettering, Printed Effect Gold Leaf, 6.00", (1-20)	<p><b>LETTERING</b> One (1) to twenty (20) printed effect gold leaf lettering, 6.00" high, with outline and shade will be provided.</p>	
0685600		Lettering, Printed Effect Gold Leaf, 3.00", (61-80)	<p><b>LETTERING</b> Sixty-one (61) to eighty (80) printed effect gold leaf lettering, 3.00" high, with outline and shade will be provided.</p>	
0685993		Lettering, Reflective, 10.00", Each	<p><b>LETTERING</b> There will be reflective lettering, 10.00" high, with outline and shade provided. There will be two (2) letters provided.</p>	
0686017		Lettering, Reflective, 5.00", (1-20)	<p><b>LETTERING</b> One (1) to twenty (20) reflective lettering, 5.00" high, with outline and shade will be provided.</p>	

0017268	Decals, Customer furnished, Pierce installed, Per Pair	<p><b>DECAL INSTALLATION</b> There will be two (2) pair of decals furnished by the fire department and applied by the manufacturer.</p>	Item 1.
0624039	Manual, Fire Apparatus Parts, (1) Hard Copy, (1) USB Flash Drive, Custom	<p><b>FIRE APPARATUS PARTS MANUALS</b> There will be two (2) custom parts manuals for the complete fire apparatus provided. There will be one (1) hard copy and one (1) USB flash drive copy provided. 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.</p> <p><b>SERVICE PARTS INTERNET SITE</b> 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.</p>	
0772037	Manual, Chassis Service, USB Flash Drive, Custom	<p><b>CHASSIS SERVICE MANUALS</b> There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit. The manual will contain the following sections: Job number Table of contents Troubleshooting Front Axle/Suspension Brakes Engine Tires Wheels Cab Electrical, DC Air Systems Plumbing Appendix The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.</p>	
0773381	Manual, Chassis Operation, (1) USB Flash Drive, Custom	<p><b>CHASSIS OPERATION MANUAL</b> The chassis operation manual will be provided on one (1) USB flash drive.</p>	
0030008	Warranty, Basic, 1 Year, Apparatus, WA0008	<p><b>ONE (1) YEAR MATERIAL AND WORKMANSHIP</b> A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.</p>	
0735523	Warranty, Engine, Paccar MX13, 5 Year, WA0386	<p><b>ENGINE WARRANTY</b> A Paccar five (5) year limited engine warranty will be provided. A limited warranty certificate is included with this proposal.</p>	
0684953	Warranty, Steering Gear, Sheppard M110, 3 Year WA0201	<p><b>STEERING GEAR WARRANTY</b> A Sheppard three (3) year limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with this proposal.</p>	
0596017	Warranty, Frame, 50 Year, Custom Chassis, WA0013	<p><b>FIFTY (50) YEAR STRUCTURAL INTEGRITY</b> The Pierce custom chassis frame limited warranty certificate, WA0013, is included with this proposal.</p>	
0595698	Warranty, Axle, 3 Year, TAK-4, WA0050	<p><b>FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.</p>	
0644874	Warranty, Axle, 3 Year, TAK-4, IRS, WA0249	<p><b>REAR AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> Pierce TAK-4® independent rear suspension will be provided with a three (3) year material and workmanship limited warranty. The manufacturer's warranty will provide that the independent rear suspension be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and service.</p>	

0652758	Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	<b>ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.	Item 1.
0019914	Warranty, Structure, 10 Year, Custom Cab, WA0012	<b>TEN (10) YEAR STRUCTURAL INTEGRITY</b> The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.	
0744240	Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	<b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.	
0524627	Warranty, Electronics, 5 Year, MUX, WA0014	<b>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</b> The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.	
0695416	Warranty, Pierce Camera System, WA0188	<b>CAMERA SYSTEM WARRANTY</b> A Pierce fifty four (54) month <b>warranty will be provided for the camera system.</b>	
0647720	Warranty, Pierce LED Strip Lights, WA0203	<b>COMPARTMENT LIGHT WARRANTY</b> The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.	
0046369	Warranty, 5-year EVS Transmission, Standard Custom, WA0187	<b>TRANSMISSION WARRANTY</b> The transmission will have a <b>five (5) year/unlimited mileage</b> warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission. Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.	
0685945	Warranty, Transmission Cooler, WA0216	<b>TRANSMISSION COOLER WARRANTY</b> 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 included with this proposal.	
0688798	Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195	<b>WATER TANK WARRANTY</b> A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.	
0596025	Warranty, Structure, 10 Year, Body, WA0009	<b>TEN (10) YEAR STRUCTURAL INTEGRITY</b> The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.	
0693127	Warranty, Gortite, Roll-up Door, 6 Year, WA0190	<b>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</b> A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A <b>six (6) year</b> limited warranty will be provided on painted and satin roll up doors. The limited warranty certificate, WA0190, is included with this proposal.	
0734463	Warranty, Pump, Waterous, 7 Year Parts, WA0382	<b>PUMP WARRANTY</b> The Waterous pump will be provided with a seven (7) year <b>material and workmanship limited warranty.</b> <b>A copy of the warranty certificate will be included with this proposal.</b>	
0648675	Warranty, 10 Year S/S Pumping, WA0035	<b>TEN (10) YEAR PUMP PLUMBING WARRANTY</b> The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.	
0657990	Warranty, Foam System, Husky 3, WA0231	<b>FOAM SYSTEM WARRANTY</b> The Husky 3 foam system limited warranty certificate, WA0231, is included with this proposal.	
0006999	Warranty, Structure, 20 Year, Aerial Device, WA0052	<b>TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY</b> The Pierce device limited warranty certificate, WA0052, is included with this proposal.	

0687388	Warranty, Swivels, 5 Year, Aerial Device, WA0197	<p><b>AERIAL SWIVEL WARRANTY</b> An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be included with this proposal.</p>	Item 1.
0685727	Warranty, Hydraulic System and Components, 3 Year/5 Year, WA0200	<p><b>HYDRAULIC SYSTEM COMPONENTS WARRANTY</b> Aerial hydraulic system components will be provided with a five (5) year material and workmanship limited warranty. <b>HYDRAULIC SEAL WARRANTY</b> Aerial hydraulic seals will be provided with a three (3) year material and workmanship limited warranty. A copy of the warranty certificates is included with this proposal.</p>	
0687327	Warranty, Waterway, 10 Year, Aerial Device, WA0198	<p><b>AERIAL WATERWAY WARRANTY</b> An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate is included with this proposal.</p>	
0595860	Warranty, Paint, 4 Year, Aerial Device, Pro-Rated, WA0047	<p><b>FOUR (4) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal.</p>	
0595820	Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	<p><b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.</p>	
0595421	Warranty, Goldstar, 3 Year, Apparatus, WA0018	<p><b>THREE (3) YEAR MATERIAL AND WORKMANSHIP</b> The Pierce Goldstar gold leaf lamination limited warranty limited warranty certificate, WA0018, is included with this proposal.</p>	
0819254	Certification, Vehicle Stability, CD0196	<p><b>VEHICLE STABILITY CERTIFICATION</b> The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1900, current edition, section 7.14, Vehicle Stability. The certification is included with this proposal.</p>	
0808565	Certification, Engine Installation, Enf, Paccar MX, 2027	<p><b>ENGINE INSTALLATION CERTIFICATION</b> 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><b>POWER STEERING CERTIFICATION</b> The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification is included with this proposal.</p>	



**CAB INTEGRITY CERTIFICATION**

The fire apparatus manufacturer will provide a cab crash test certification with this proposal. The certification will state that a specimen representing the substantial structural configuration of 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:

Item 1.

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 cab will be subjected to dynamic preload where a 14,320-lb moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lb of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

**Frontal Impact**

The same cab will withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.

**Additional Frontal Impact**

The same cab will withstand a frontal impact of 65,098 ft-lb of force using a moving barrier. (Twice the force required by SAE J2420)

**Roof Crush**

The cab will be subjected to a roof crush force of 22,500 lb. This value meets the ECE 29 criteria, and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.

**Additional Roof Crush**

The same cab will be subjected to a roof crush force of 110,000 lbs. (Four and a half times the load criteria of ECE 29)

The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.

There will be no exception to any portion of the cab integrity certification. Nonconformance will lead to immediate rejection of bid.

0631973

Certification, Cab Door Durability,  
Saber FR/Enforcer, CD0137**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.

0631978

Certification, Windshield Wiper  
Durability, Saber FR/Enforcer,  
CD0132**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 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

0631974

Certification, Electric Window  
Durability, Saber FR/Enforcer,  
CD0133**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.

0631977

Certification, Seat Belt Anchors and  
Mounting, Saber FR/Enforcer,  
CD0134**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.

**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, at time of delivery, that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

0735949 Certification, Cab HVAC System Performance, SFR/Enf, CD0165/CD0167/CD0174/CD0175

**PERFORMANCE CERTIFICATIONS**

**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.

Item 1.

**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. *The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.*

**Cab Auxiliary Heater**

*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.*

0545073 Amp Draw Report, NFPA Current Edition

**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: Current edition of applicable NFPA standards. The minimum continuous load of each component that is specified per: Current edition of applicable NFPA standards. 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 current edition of applicable NFPA standards.

0002758 Amp Draw, NFPA/ULC Radio Allowance

0799248 Appleton/Florida BTO

0000049 Ascendant BODY

0000012 PIERCE CHASSIS

0735525 PACCAR MX13 ENGINE

0046396 EVS 4000 Series TRANSMISSION

0020011 WATEROUS PUMP

0020009 POLY TANK

0028048 FOAM SYSTEM

0020006 SIDE CONTROL

0020007 AKRON VALVES

0020015 ABS SYSTEM

0755453 AERIAL BASE



# Electrical Analysis

2/ Item 1.

**Bid #:** 790 **Job #:**  
**Desc:** Oroville 107' **Sales Rep:** Hansen, Brad  
**Customer:** City of Oroville **Organization:** Golden State Fire Apparatus, Inc  
**Option:** Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT **Type:** Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0001244	High Idle w/Electronic Engine, Custom		0.00	1.20	0.00
0072153	Primer, Trident, Air Prime, Air Operated		0.00	0.00	0.00
0079212	Batteries, (6) Stryten/Exide Grp 31, 950 CCA each, SAE Posts		0.00	3.00	0.00
0081564	Alarm, Back-Up Warning, ECCO 505, 87db Constant		0.00	0.50	0.00
0543751	Light, Do Not Move Apparatus		0.00	0.80	0.00
0549333	Indicators, Engine, Included with Pressure Controller		0.00	0.35	0.00
0550452	Lights, Side Scene, Zico ZQL-SS-LED, Stainless 1st		0.00	0.00	1.00
0553643	Control, Air Horn at Pmp Pnl, Red Switch		0.00	0.16	0.00
0583824	Light, Pump Compt, WIn 3SC0CDCR LED White		0.00	0.36	0.00
0583938	Lights, Engine Compt, Custom, Auto Sw, WIn 3SC0CDCR, 3"		0.00	0.30	0.00
0604354	Gauge, Foam Level, FRC, Tank Vision Pro, WLA 360-A00, Class		0.00	0.00	1.23
0624939	Foam Sys, Husky 3, Single Agent, Multi Select Feature		0.00	55.00	0.00
0630636	Controls, Electric Roll-Up Windows, 4dr, 4 Driver Controls, Saber		0.00	26.00	0.00
0639727	Cab Lift, Elec/Hyd, Manual Override, Saber FR/Enforcer		0.00	180.00	0.00
0653677	Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid,		0.00	0.00	7.20
0662391	Lights, Side, WIn WIONSMCD Split R/W LED, Chrome Flng,Mnt		0.00	0.00	4.00
0688927	Reel, Booster, Aluminum - Over Pump, Left Side		0.00	36.00	0.00
0735006	Intercom, David Clark, 4-Pos, 2-Radio, (D,O,RPTT), 2obC, U3805		0.00	0.00	0.50
0735687	Engine Brake, Fully Integrated, Paccar MX13 Engine		0.00	0.42	0.00
0770696	Aerial PTO Activated with Aerial Master Sw		0.00	0.00	0.08
0772850	Lights, WIn, S16*M* 16" 12VDC, 1st		0.00	0.00	7.20
0773547	Stabilizers, Ascendant Tandem, 16' Spread, 18" Pen, Controls		0.00	4.00	0.00
0804781	Aerial Scene Lts Separated into Aerial Tip Category and Aerial		0.00	0.00	0.00
0806466	Lights, Backup, WIn M62BU, LED, For Tail Lt Housing		0.00	3.20	0.00
0816486	Camera, Pierce, LS Mux, RS, R, SD Cameras, CL714		0.00	1.20	0.00
0820894	Wiring, Spare, 15 A 12V DC, Batt Dir, 1st NFPA1900		0.00	0.00	15.00
0821232	Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025		0.00	0.00	20.00
0821260	Wiring, Spare, 20 A 12V DC, 12 Ckt Fuse Block, Blue Sea 5026		0.00	0.00	20.00
0821329	Wiring, Spare, 10 A 12V DC Batt Dir 1st NFPA1900		0.00	0.00	10.00
0821337	ABS Wabco Brake System, Tandem Rear Axle, Tak-4, NFPA		0.00	6.00	0.00
0895310	Siren, Federal Q2B		0.00	100.00	0.00
0722696	HVAC, Standard-Duty, Enforcer, CARE	Load Managed	0.00	0.00	100.00
0763608	Lights, WIn, PCPSM2*, Pioneer, 12 VDC, 2nd	Load Managed	0.00	0.00	12.00
0763610	Lights, WIn, PCPSM2*, Pioneer, 12 VDC, 1st	Load Managed	0.00	0.00	12.00
0768059	Lights, WIn, PCPSM2* Pioneer, 12 VDC, 2nd	Load Managed	0.00	0.00	12.00
0768061	Lights, WIn, PCPSM2* Pioneer, 12 VDC, 1st	Load Managed	0.00	0.00	12.00
0821230	Wiring, Spare, 20 A 12V DC, 6 CKT FB, Blue Sea 5025 1st	Load Managed	0.00	0.00	20.00
0821233	Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025	Load Managed	0.00	0.00	20.00
0821261	Wiring, Spare, 20 A 12V DC, 12 Circuit Fuse Block, Blue Sea	Load Managed	0.00	0.00	20.00
0821302	Wiring, Spare,12V DC, USB-A & C Term, Kussmaul 091-264 Cab	Load Managed	0.00	0.00	24.00
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
0010758	Flow Meter, Waterway, PAL, 110' Ascendant, MUX	NFPA	0.50	0.00	0.00
0063686	Compt, LS F/H F/D, Lap Drs, w/o Chute, Ascendant Tandem, 105	NFPA	2.70	0.00	2.70
0063729	Compt, RS F/H F/D, Lap Drs, w/Chute, Ascendant Tandem, 105	NFPA	2.70	0.00	2.70
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

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



# Electrical Analysis

2/ Item 1.

**Bid #:** 790 **Job #:**  
**Desc:** Oroville 107' **Sales Rep:** Hansen, Brad  
**Customer:** City of Oroville **Organization:** Golden State Fire Apparatus, Inc  
**Option:** Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT **Type:** Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0534828	Siren, WIn 295SL101, 100 or 200W Removable Mic	NFPA	0.80	7.20	0.00
0534987	Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts,	NFPA	0.35	0.00	0.00
0540692	Lights, Side Zone Lower, WIn M6*C LED, Clear Lens, 3pr, Ovr 25	NFPA	5.40	8.10	0.00
0540743	Lights, Stabilizer Warn (2) Sets, WIn M6*C LED, Clear Lens	NFPA	3.60	5.40	0.00
0564655	Lights, Rear Zn Lwr, WIn M6*C LED, Clear Lens, For Tail Lt	NFPA	1.80	2.70	0.00
0586382	Gauges, Engine, Included With Pressure Controller	NFPA	0.30	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
0602100	Lights, Torque Box Ladder Storage, Pierce LED Strip Lights, 2 Lts	NFPA	1.00	0.00	0.00
0604635	Lightbar, WIn, Freedom IV-Q, 2-21.5", RRRWR RWRRR	NFPA	6.48	2.48	7.28
0605126	Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous	NFPA	1.00	0.00	0.00
0607159	Gauge, Water Level, FRC, WLA 300-A00, TankVision Pro	NFPA	1.23	0.00	0.00
0616277	Lights, Perimeter Body, TecNiq T10-LC00-1 15" LED 2lts,	NFPA	0.80	0.00	0.00
0616374	Light, Locator, WIn M2W** At Tip, Facing Out, PAL/PAP, 2lts	NFPA	0.90	1.30	0.00
0616648	Lights, Perimeter Pump House, TecNiq T10-LC00-1 15" LED 1lt	NFPA	0.40	0.00	0.00
0620054	Light, Directional/Marker, Intermediate, Weldon 9186-8580-29	NFPA	0.10	0.90	0.00
0622803	Cab Instruments, Black Gauges, Black Bezels, Enforcer MUX	NFPA	1.26	0.00	0.00
0625210	Lights, Directional, Cab Front Side, Truck-Lite 19036Y LED,	NFPA	0.12	0.00	0.00
0625650	Cab, Enforcer, 7000	NFPA	6.80	10.20	0.00
0625953	Light, Directional, WIn 600 Cmb, Cab Crn, Wrp Bzl Out HD Lts,	NFPA	0.70	0.70	0.00
0626588	Lights, Perimeter Cab, TecNiq T10-LC00-1 15" LED 4Dr	NFPA	1.60	0.00	0.00
0647632	Lights, Dome, WIn 60C*EGCS Dual LED 4 Lts	NFPA	3.00	3.00	0.00
0653937	Flasher, Headlight Alternating	NFPA	0.08	0.00	0.00
0667186	Light, Slide-Out Pump Operator Step, On Scene Solutions Access	NFPA	0.65	0.00	0.00
0682488	Light Shield, S/S, PS LED	NFPA	3.00	0.00	0.00
0692045	Controller, Pressure, FRC, Pump Boss, PBA400	NFPA	1.80	0.00	0.00
0709438	Lights, Walk Surf, FRP Flood, LED	NFPA	2.00	0.00	0.00
0721558	Lights, Tip, WIn MPB* LED, ASL 4lt	NFPA	14.00	0.00	0.00
0731813	Hour Meter, Aerial, Included in Information Centers, ASL, AAT,	NFPA	0.10	0.00	0.00
0734373	Lights, Clearance/Marker, Side, Truck-Lite 33050Y 2 Lts, Others	NFPA	0.49	0.00	0.00
0736670	Headlights, Rect LED, HiViz FT-4X6-4KIT,	NFPA	7.66	7.66	0.00
0737181	Intercom, 2-Way Fire Research ICA910 Hands Free	NFPA	0.50	0.00	0.00
0739224	Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure	NFPA	0.10	0.00	0.00
0742601	Light, Visor, WIn S86M**, 86" Cnt Feature	NFPA	0.32	0.00	21.68
0743720	Lights, Rear/Side Up Zone, WIn M6** LED 4lts	NFPA	3.60	5.40	0.00
0744440	Compt, RS Turntable, F/H, Lap Drs, Angled T/T Access,	NFPA	2.70	0.00	2.70
0745568	Indicator Light, Pump Panel, Ok To Pump, Green	NFPA	0.10	0.00	0.00
0746723	Compt, LS Turntable, F/H F/D, Lap Drs, Angled T/T Access,	NFPA	1.80	0.00	1.80
0755095	Aerial, 107' ASL Tandem, 750/500 Tip, 50 MPH	NFPA	5.00	0.00	0.00
0760868	Lights, Cargo/Dunnage, Dual LED Light Strips, Each Side	NFPA	0.30	0.00	0.00
0762413	Light, Boom Support, Amdor AY-LB-12HW012, 12" LED	NFPA	0.18	0.00	0.00
0764088	Wiring, Spare, 47.5 A 12V DC, Cust Install Radio, 40A Bat Dir,	Load Managed	40.00	0.00	7.50
0783470	Cabinet, Forward Facing, Center, 42 W x 40 H x 24.75 D, Roll,	NFPA	0.40	0.40	0.00
0790412	Air Dryer, Wabco System Saver 1200 IWT, Heated, SFR/Enf	NFPA	7.81	0.00	0.00
0791467	Light, Traffic Directing, WIn TAM83, 30.87" Long LED	NFPA	1.60	1.60	0.00
0791920	Lights, Stabilizer Scene, (2) Sets, WIn 20C0CDCD LED	NFPA	2.00	0.00	0.00
0801890	Trans, Allison 6th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/Enf	NFPA	2.00	2.00	0.00

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



# Electrical Analysis

2/2 Item 1.

**Bid #:** 790 **Job #:**  
**Desc:** Oroville 107' **Sales Rep:** Hansen, Brad  
**Customer:** City of Oroville **Organization:** Golden State Fire Apparatus, Inc  
**Option:** Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT **Type:** Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0802753	Lights, Tracking, WIn MP** LED, 2lts	NFPA	8.00	0.00	0.00
0804514	Lights, Tail, WIn M62BTT* Red Stop/Tail & M62T* Amber Dir Arw	NFPA	0.83	2.49	0.00
0808515	Engine, Paccar MX, 510HP, 1850 lb-ftW/OBD, EPA 2027, Saber	NFPA	6.00	0.00	0.00
0813791	Panel, Charger Display, Kussmaul, 091-94-12, Batt Dir	NFPA	0.03	0.00	0.00
0814201	Vehicle Information Center, 7" Color Display, Touchscreen, MUX,	NFPA	1.20	0.00	0.00
0814217	Control Stations, ASL Tandem Axle, MUX, Color Display, CL714	NFPA	4.26	0.00	0.00
0889521	DEF Tank, 7.3 Gallon, LS Fill, Under Cab, Paccar, Lift Up Fill Dr,	NFPA	0.60	11.40	0.00
0889577	Bracket, License Plate & Light, P25 LED, Stainless Brkt	NFPA	0.07	0.00	0.00
0892638	Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 6lts	NFPA	1.00	0.00	0.00
0892656	Lights, Step (6), P25 LED, Each Side	NFPA	0.30	0.00	0.00
0899300	Lights, Front Zone, WIn M6** M6RS M6RS M6**, Inside Steady	NFPA	3.60	5.40	0.00
0647728	Alternator, 430 amp, Delco Remy 55SI	S	0.00	0.00	0.00
<b>Load Totals:</b>			<b>178.41</b>	<b>497.38</b>	<b>364.57</b>

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: 268.00**

Minimum Continuous Load	
Supply:	268.00
Demand:	178.41
Variance:	89.59

**Alternator Output at Governed Speed: 374.00**

Total Connected Load	
Supply:	374.00
Demand:	310.98
Variance:	63.02

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



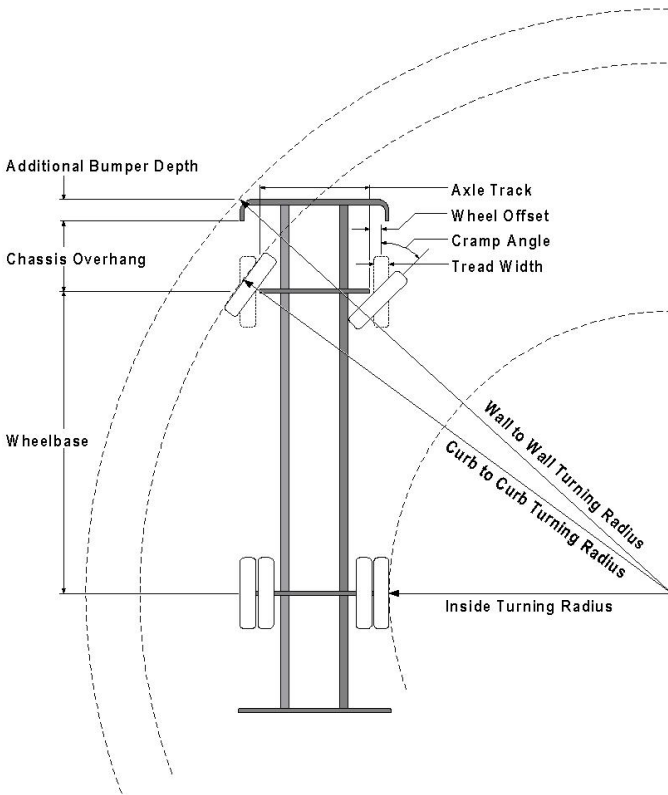
# Turning Performance Analysis

02/26/2024

Item 1.

**Bid Number:** 790  
**Department:** City of Oroville

**Chassis:** Enforcer Chassis, Aerials, Tandem Axle, Ascendant/LSL  
**Body:** Aerial, HD Ladder 107' ASL Tandem, Alum Body



**Parameters:**

*Inside Cramp Angle:	45°
Axle Track:	82.92 in.
Wheel Offset:	5.25 in.
Tread Width:	16.3 in.
Chassis Overhang:	65.95 in.
Additional Bumper Depth:	7 in.
Front Overhang:	79.5 in.
Wheelbase:	246.5 in.

**Calculated Turning Radii:**

Inside Turn:	19 ft. 5 in.
Curb to curb:	35 ft. 5 in.
Wall to wall:	39 ft. 5 in.

Category	Option	Description
Aerial Devices	0755095	Aerial, 107' ASL Tandem, 750/500 Tip, 50 MPH
Axle, Front, Custom	0629940	Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Enforcer
Bumpers	0603633	Bumper, Non-Extended, Steel, Painted, Saber FR/Enforcer
Wheels, Front	0725046	Wheels, Front, 22.50" x 12.25", Steel, Hub Pilot, 24k
Tires, Front	0899438	Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply

**Notes:**

\*Actual Inside cramp angle may be less than shown.

Curb to Curb turning radius calculated for 9.00 inch curb.

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**Definitions:**

Item 1.

Inside CrampAngle	Maximum turning angle of the front inside fire.
Axle Track	King-pin to King-pin distance of front axle.
Wheel Offset	Offset from the center line of the wheel to the King-pin.
Tread Width	Width of the tire tread.
Chassis Overhang	Distance of the center line of the front axle to the front edge of the cab. This does not include the bumper depth.
Additional Bumper Wheel	Depth that the bumper assembly adds to the front overhang.
Wheelbase	Distance between the center lines of the vehicles front and rear axles.
Inside Turning Radius	Radius of the smallest circle around which the vehicle can turn.
Curb to Curb Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures assumes a curb height of 9 inches.
Wall to Wall Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures takes into account any front overhang due to chassis , bumper extensions and or aerial devices.

# **4** **PRODUCT** **WARRANTIES**

**Exhibit "C"**





# 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:

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

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

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

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

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

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

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

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

### 2. DISCLAIMERS OF WARRANTIES

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

### 3. BUYER'S EXCLUSIVE REMEDY

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

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

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

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



# Fire and Rescue Apparatus



## SUPPLIER

### Limited Warranty

#### 1. LIMITED WARRANTY

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

<b>Coverage:</b>	<b>Covers any failures of the engine which result, under normal use and service, from a defect in material or factory workmanship.</b>
<b>Warranty Begins:</b>	<b>The date of the original buyer invoice.</b>
<b>Warranty Period Ends After:</b>	<b>Five (5) years or 100,000 miles, whichever occurs first</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>See warranty for exclusions.</b>

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

3/19/2021 WA0386

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.

## **PACCAR ENGINE LIMITED WARRANTY**

### **PACCAR MX Warranty**

### **United States**

**THIS LIMITED WARRANTY (“LIMITED WARRANTY”) LISTS THE RESPECTIVE RIGHTS AND RESPONSIBILITIES OF PIERCE MANUFACTURING INC.’S END USER CUSTOMER THAT FIRST PUTS THE PACCAR ENGINE INTO SERVICE (“YOU” or “FIRST PURCHASER”), PACCAR INC (“PACCAR”), AND THE SERVICING PACCAR ENGINE DISTRIBUTORS (“AUTHORIZED DISTRIBUTORS”). PLEASE READ THIS LIMITED WARRANTY CAREFULLY.**

PACCAR warrants directly to You that the PACCAR MX engine and related kitted parts (collectively, the “Engine”) will be free from defects in materials and factory workmanship (“Warrantable Failures”) appearing under normal commercial use and service during the time, mileage or hour limitations set forth in the attached Warranty Schedule. **This Engine warranty extends only to You, and not any subsequent owner or user of the Engine.** The Emissions warranty is made to all owners of the Engine in the chain of distribution until the end of the Emissions warranty coverage period. Warranty coverage relating to the Emissions components is outlined in the Emissions Warranty section of the PACCAR MX Operator’s Manual, the terms and conditions of which are incorporated herein by reference.

YOUR SOLE AND EXCLUSIVE REMEDY AGAINST PACCAR AND ITS SUBSIDIARIES AND AFFILIATES ARISING FROM YOUR PURCHASE AND USE OF THIS ENGINE IS LIMITED TO THE REPAIR OR REPLACEMENT OF WARRANTABLE FAILURES AT AUTHORIZED DISTRIBUTORS IN THE UNITED STATES AND CANADA AND IS SUBJECT TO PACCAR’S TIME, MILEAGE, AND HOUR LIMITATIONS LISTED IN THE ATTACHED WARRANTY SCHEDULES. The maximum time, mileage and hour limitations in the Warranty Schedules begin running on the Date of Delivery to the First Purchaser. **The accrued time, mileage, or hours is calculated when this Engine is brought into an Authorized Distributor for correction of Warrantable Failures.**

#### **WARRANTY DISCLAIMER AND LIMITATIONS OF LIABILITY (ENGINE AND EMISSIONS)**

**This Limited Warranty is the sole warranty made by PACCAR and its Authorized Distributors to You relating to the Engine. Except for the above limited express warranty, PACCAR and its Authorized Distributors make no other warranties to You, express or implied. PACCAR AND ITS AUTHORIZED DISTRIBUTORS EXPRESSLY DISCLAIM ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

IT IS AGREED THAT PACCAR AND ITS AUTHORIZED DISTRIBUTORS SHALL NOT BE LIABLE TO YOU FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO: LOSS OF INCOME OR LOST PROFITS; ENGINE OR VEHICLE DOWNTIME; THIRD PARTY DAMAGE, INCLUDING DAMAGE OR LOSS TO OTHER ENGINES, VEHICLES OR PROPERTY, ATTACHMENTS, TRAILERS AND CARGO; LOSS OR DAMAGE TO PERSONAL CONTENTS; COMMUNICATION EXPENSES; LODGING AND/OR MEAL EXPENSES; FINES; APPLICABLE TAXES OR BUSINESS COSTS OR LOSSES; ATTORNEYS’ FEES; AND ANY LIABILITY YOU MAY HAVE IN RESPECT TO ANY OTHER PERSON OR ENTITY.

This warranty does not apply to parts or accessories supplied by the vehicle manufacturer or third parties.

Failures of belts and hoses supplied by PACCAR are covered during the first year from the Date of Delivery of the Engine to the First Purchaser. PACCAR does not warrant antifreeze, lubricants, filters, filter elements, or any other part that is a maintenance or repair item. However, in its sole discretion, PACCAR may pay for lubricating oil, antifreeze, filter elements, belts, hoses, and other maintenance or repair items if the need for replacing such items is due to a Warrantable Failure of the Engine.

You are responsible for the safe operation and maintenance of the Engine and Emissions equipment as specified in the applicable Operator’s Manuals. You are responsible for providing proof that all recommended inspections and maintenance have been performed. Before the expiration of the applicable warranty, You must notify an Authorized Distributor of any Warrantable Failures and make the Engine available for Engine repair by such Authorized Distributor. You are responsible for delivery of the Engine to the Authorized Distributor. Locations in the United States and Canada of Authorized Distributors may be found at [WWW.PACCARPOWERTRAIN.COM](http://WWW.PACCARPOWERTRAIN.COM).

PACCAR IS NOT RESPONSIBLE FOR WEAR AND TEAR OR WEAROUT OF COVERED PARTS, storage deterioration, and changes in adjustment resulting from your use of the Engine. Damage due to accident, misuse, abuse, neglect, negligence, improper or insufficient maintenance, or unauthorized modification is not warranted. This may include, but is not limited to: operation without adequate coolants, lubricants, or other fluids; over-fueling; over-speeding; lack of maintenance of the lubricating, cooling or air intake systems; improper storage, starting, warm-up, run-in or shutdown practices; and unauthorized modifications to the Engine. **PACCAR is not responsible for damage or loss resulting from Engine horsepower/torque upgrades.**

Parts used to repair a Warrantable Failure may be new parts, approved remanufactured parts, or repaired parts. PACCAR is not responsible for failures resulting from the use of parts not approved by PACCAR. A new or approved remanufactured part used to repair a Warrantable Failure assumes the identity of the part it has replaced and is entitled to the remaining warranty coverage, if any.

PACCAR IS NOT RESPONSIBLE FOR DAMAGE OR LOSSES CAUSED BY INCORRECT OIL, FUEL, DIESEL EXHAUST FLUID, COOLANT, OR ADDITIVES; WATER, DIRT OR OTHER CONTAMINANTS IN THE FUEL, OIL OR DIESEL EXHAUST FLUID; OPERATION WITHOUT ADEQUATE COOLANTS OR LUBRICANTS; OVER-FUELING; OVER-SPEEDING; IMPROPER STORAGE, STARTING, WARM-UP, RUN-IN OR SHUT-DOWN PRACTICES; OR UNAUTHORIZED MODIFICATIONS OF THE ENGINE. Failure of replacement parts used in repairs due to the above non-warrantable conditions is not warrantable.

If your vehicle is disabled by a Warrantable Failure to the Engine during the base warranty period, PACCAR is not responsible for towing expenses to transport the vehicle to the nearest Authorized Distributor. In lieu of the towing expense and at the sole discretion of PACCAR,

PACCAR will pay the reasonable costs of an authorized mechanic to travel to and from the location of the disabled Vehicle in order to perform the Engine repair.

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

Warrantable Failures resulting in excessive oil consumption will be handled within the basic Engine coverage as stated in the attached Engine Schedule. Before a claim for excessive oil consumption, low power, or excessive fuel consumption will be considered for payment, You must submit adequate documentation to show that consumption exceeds PACCAR published standards

PACCAR reserves the right to inspect and download data from the Engine Electronic Control Module for purpose of failure analysis unless prohibited by applicable law.

**TIME LIMIT ON COMMENCING LEGAL ACTION / OTHER TERMS**

IT IS AGREED THAT YOU HAVE 12 MONTHS FROM THE ACCRUAL OF THE CAUSE OF ACTION TO COMMENCE ANY LEGAL ACTION ARISING FROM THE PURCHASE OR USE OF THE ENGINE, OR BE BARRED FOREVER.

To the extent any provision of this limited warranty is found to contravene the law of any jurisdiction, the remainder of the warranty shall not be affected thereby.

# PACCAR ENGINE LIMITED WARRANTY SCHEDULE

## PACCAR MX Warranty

### United States

THIS ENGINE WARRANTY SCHEDULE APPLIES ONLY TO ORIGINAL FACTORY EQUIPMENT AND IS SUBJECT TO THE TERMS AND LIMITATIONS IN THE ATTACHED LIMITED WARRANTY. This Engine Warranty Schedule does not apply to the vehicle which is warranted separately. Pursuant to the terms of the attached Limited Warranty, PACCAR Inc ("PACCAR") will pay warranty claims for Warrantable Failures within the following maximum limits in time, mileage, or hours, **whichever shall occur first**. The Warrantable Failure must be brought to the attention of an Authorized Distributor within 30 days of discovery.

### PACCAR MX Engine

**Basic Engine -Twenty-four (24) months or 250,000 miles (or 400,000 km) or 6,250 hours** - (all applications except fire apparatus)

**Fire Apparatus Truck Applications Basic Engine - Sixty (60) months or 100,000 miles (or 160,000 km) or 6,250 hours**

**Major Engine Components - Sixty (60) months or 500,000 miles or 12,500 hours**

- |                         |                           |                     |                    |
|-------------------------|---------------------------|---------------------|--------------------|
| Cylinder Block Casting  | Crankshaft                | Lube Pump Gear      | Flywheel Housing   |
| Main Bearing Bolts      | Camshaft                  | Crankshaft Gear     | Water Pump Housing |
| Cylinder Head Casting   | Cam Follower Assemblies   | Camshaft Gear       | Thermostat Housing |
| Cylinder Head Capscrews | Connecting Rod Assemblies | Camshaft Idler Gear |                    |

**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 Custom Chassis Frame Limited Warranty

**1. LIMITED WARRANTY**

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

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

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

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

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

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

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

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

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

**2. DISCLAIMERS OF WARRANTIES**

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

**3. BUYER'S EXCLUSIVE REMEDY**

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

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

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

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



# Fire and Rescue Apparatus

## 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:

<b>Coverage:</b>	The TAK-4 Front Independent Suspension and Steering Gears shall be free from defects in material and workmanship.
<b>Warranty Begins:</b>	The date of the original purchase invoice (issued when the product ships from the factory).
<b>Warranty Period Ends After:</b>	Three (3) Years -or- 30,000 Miles
<b>Conditions and Exclusions:</b>  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

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

### Limited Warranty

**1. LIMITED WARRANTY**

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

<b>Coverage:</b>	The TAK-4 Rear Independent Suspension and Steering Gears shall be free from defects in material and workmanship.
<b>Warranty Begins:</b>	The date of the original purchase invoice (issued when the product ships from the factory).
<b>Warranty Period Ends After:</b>	Three (3) Years -or- 30,000 Miles
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	This limited warranty excludes brake shoes, brake drums, ball joint 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

## Three (3) Year Material and Workmanship Meritor Wabco ABS Brake System Limited Warranty

### 1. LIMITED WARRANTY

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

<b>Coverage:</b>	The Meritor Wabco ABS brake system shall be covered by Meritor Wabco as indicated in the attached Meritor Wabco warranty coverage description
<b>Warranty Begins:</b>	The date of the original purchase invoice (issued when the product ships from the factory).
<b>Warranty Period Ends After:</b>	Three (3) Year
<b>Conditions and Exclusions:</b>  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
- Aerial Platform
- Ambulance
- Auto Hauler
- Beverage Truck
- Bulk Hauler
- Chip Hauler (Truck)
- Cross Country Coach
- Doubles
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Grain Hauler
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Pipe Hauler
- Platform Auto Hauler
- Pumper
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Truck
- Triples
- Tour Bus
- Wrecker

### 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 <sup>1</sup>	
Air Management	
Air Brake Valves	1/100/P&L
Trailer Lift Axle Control Valve	
Trailer Control Line Filter <sup>3</sup>	
Air Compressors (ALL) <sup>2</sup>	2/200/P&L
Air Dryers (ALL)	3/300/P&L
Aerodynamics	
OptiFlow <sup>®</sup> TrailerSkirt	2/UnU/P
OptiFlow <sup>®</sup> Trailer Tail and AutoTail	2/UnI/P
Braking Systems	
ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	
Electronic Braking System (EBS)	
Electronic Stability Control (ESC)	
Roll Stability Control (RSS)	
Trailer Roll Stability Support (RSS)	
Trailer ABS (Anti-Lock Braking System) <sup>3</sup>	
Driveline Suspension Control	
Clutch Controls	2/200/P&L
Leveling Valves	1/100/P&L
OptiRide <sup>®</sup> Automated Manual Transmission (AMT)	
OptiRide <sup>®</sup> Electronically Controlled Air Suspension (ECAS)	3/300/P&L

WABCO Components <sup>1</sup> (cont.)	
Safety	
OnGuardACTIVE <sup>®</sup>	3/300/P&L
OnLane <sup>®</sup>	
OnLaneALERT <sup>®</sup>	
OnSide <sup>®</sup>	
Trailer SafeStart <sup>™</sup>	
Trailer TailGUARD <sup>™</sup>	
Telematics	
TrailerCAST <sup>™</sup> Telematics Device	3/300/P&L
Wheel End Solutions	
EasyFit <sup>™</sup> Slack Adjuster	6/600/P
MAXXUS <sup>™</sup> Truck Air Disc Brake	5/500/P&L
IVTM - Wheel Module	6/P
IVTM - All Other Products	2/P
Pan 17 and 19 Air Disc Brake	2/UnI/P and 1/UnI/L
Pan 22 Air Disc Brake	5/500/P and 1/L
TRISTOP <sup>™</sup> D Actuator w/ IBV or IRB	6/600/P
TRISTOP <sup>™</sup> D Actuator	3/300/P
UNISTOP <sup>™</sup> Actuator	2/200/P
Trailer MAXX22T <sup>™</sup> Air Disc Brake	5/500/P and 1/L

<sup>1</sup> ZF and WABCO branded components. <sup>2</sup> 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. <sup>3</sup> 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.

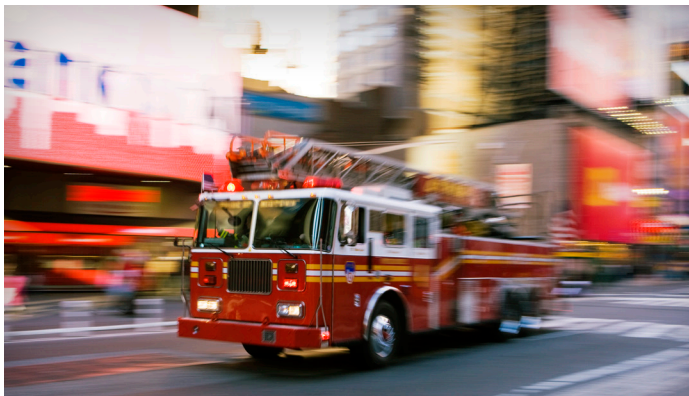
## HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

### 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<sup>1</sup>

Air Management	
Air Brake Valves	1/100/P&L
Air Compressors (ALL) <sup>2</sup>	
Air Dryers (ALL)	
Trailer Control Line Filter <sup>3</sup>	
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 <sup>3</sup>	
Roll Stability Control (RSS)	
Trailer Roll Stability Support (RSS)	
Driveline Suspension Control	
OptiRide <sup>®</sup> Electronically Controlled Air Suspension (ECAS)	2/200/P&L
Leveling Valves	1/100/P&L
Clutch Controls	2/200/P&L
Safety	
OnGuardACTIVE <sup>®</sup>	3/300/P&L
OnLane <sup>®</sup>	
OnLaneALERT <sup>®</sup>	
OnSide <sup>®</sup>	
Trailer SafeStart <sup>™</sup>	
Trailer TailGUARD <sup>™</sup>	
Telematics	
TrailerCAST <sup>™</sup> Telematics Device	3/300/P&L
Wheel End Solutions	
EasyFit <sup>™</sup> Slack Adjuster	2/200/P
MAXXUS <sup>™</sup> 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 <sup>™</sup>	1/Unl/P&L
TRISTOP <sup>™</sup> D Actuator w/ IBV	3/Unl/P
TRISTOP <sup>™</sup> D Actuator	2/200/P
UNISTOP <sup>™</sup> Actuator	1/100/P

<sup>1</sup> ZF and WABCO branded components. <sup>2</sup> 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. <sup>3</sup> 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 operation<sup>3</sup>
- 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, Scalars
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 <sup>1</sup>	
Air Management	
Air Brake Valves	2/Unl/P
Air Compressors (ALL) <sup>2</sup>	
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

<sup>1</sup> ZF and WABCO branded components. <sup>2</sup> 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. <sup>3</sup> 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](http://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:

<b>Coverage:</b>	<b>The Pierce Custom Cab shall be free from structural failures caused by defects in material and workmanship</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Ten (10) Years - or - 100,000 Miles</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>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.</b>  <b>This warranty does not apply to damage caused by corrosion.</b>

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

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

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

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

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

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

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

#### 2. DISCLAIMERS OF WARRANTIES

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

#### 3. BUYER'S EXCLUSIVE REMEDY

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

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

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

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



# Fire and Rescue Apparatus

## Ten (10) Year 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:

<b>Coverage:</b>	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.
<b>Warranty Begins:</b>	The date of the original purchase invoice (issued when the product ships from the factory).
<b>Warranty Period Ends After:</b>	Ten (10) Years
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b>                      0-72 months 100%                      73-96 months 50%                      97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b>                      0-36 months 100%                      37-84 months 50%                      85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b>                      0-36 months 100%                      37-48 months 50%                      49-72 months 25%                      73-120 months 10%</p> <p><b>Corrosion Perforation</b>                      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:

<b>Coverage:</b>	<b>Command Zone control modules shall be free from failures caused by defects in material and workmanship</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Five (5) Years</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>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.</b>

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

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

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

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

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

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

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

**2. DISCLAIMERS OF WARRANTIES**

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

**3. BUYER'S EXCLUSIVE REMEDY**

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

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

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

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





# Fire and Rescue Apparatus

## 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.



# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship

### Pierce 12V LED Strip Light

### Limited Warranty

#### 1. LIMITED WARRANTY

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

<b>Coverage:</b>	This limited warranty covers repairs to correct any defect related to materials or workmanship of the Pierce 12V LED strip lights installed on the apparatus occurring during the warranty period.
<b>Warranty Begins:</b>	The date of the original purchase invoice (issued when the product ships from the factory).
<b>Warranty Period Ends After:</b>	Ten (10) Year
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.

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.

## 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:

<b>Coverage:</b>	<b>The transmission cooler shall be free from component or structural failures caused by defects in material and/or workmanship. Collateral damage up to \$10,000 per occurrence is available for the first three (3) years.</b>
<b>Warranty Begins:</b>	<b>The date of delivery to the first retail purchaser.</b>
<b>Warranty Period Ends After:</b>	<b>Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<p><b>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.</b></p> <p><b>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.</b></p> <p><b>Towing is covered to the nearest distributor or authorized dealer only when necessary to prevent further damage to your transmission.</b></p> <p><b>Labor costs for the removal and reinstallation of goods may be covered when necessary to make repairs. Please contact your OEM for authorization.</b></p> <p><b>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.</b></p>

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

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

- (a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;
- (b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;
- (c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or
- (d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

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

**2. DISCLAIMERS OF WARRANTIES**

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

**3. BUYER'S EXCLUSIVE REMEDY.**

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

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

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

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



# UNITED PLASTIC FABRICATING, INC. WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

## LIFETIME SERVICE WARRANTY Item 1.

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 though 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



# UNITED PLASTIC FABRICATING, INC.

# WARRANTY

**FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™**

service warranty. Other polypropylene components, including but not limited to compartments, wheel wells, fenders and other body related components shall be warranted by UPF for a period of ten years. The warranty for the PolySide® and Integrator™ units excludes paint or hardware, which shall be covered by the manufacturer of the paint/hardware. Item 1.

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:

<b>Coverage:</b>	<b>The apparatus body shall be free from structural failures caused by defects in material and workmanship</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Ten (10) Years - or - 100,000 Miles</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>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.</b>  <b>This warranty does not apply to damage caused by corrosion.</b>

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

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

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

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

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

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

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

### 2. DISCLAIMERS OF WARRANTIES

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

### 3. BUYER'S EXCLUSIVE REMEDY

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

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

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

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

**Pierce Warranty Statement for Gortite Roll Up Doors Rev 2/24/2011**

All mechanical components of the door shall be warranted to be free from defects in materials and workmanship for the lifetime of the vehicle. All parts covered under this warranty shall be to the original owner.

A&A manufacturing warrants that painted doors shall be free of blistering, peeling, bubbling, or any other adhesion defect caused by defective manufacturing methods or paint material selection. The time period for the coverage shall be 6 years from date of door shipment to Pierce. Satin anodized finish doors shall be warranted for 6 years against corrosion defects from date of door shipment to Pierce. Replacement of decals/Scotchlite is not covered.

The maximum amount A&A will reimburse for labor is \$60.00 per hour and the maximum amount of time allowed for repair is as follows:

Door	1.0 Hr.
Slat Replacement	1.0 Hr.
Pennant Plate Replacement	1.0 Hr.
Roller Replacement	.5 Hr.
Seal Replacement	.5 Hr.
Switch/Magnet Replacement	1.0 Hr.
Travel Time	4.0 Hr.

## Waterous Seven-Year Limited Warranty

WATEROUS warrants, to the original Buyer only, that products manufactured by WATEROUS will be free from defects in material and workmanship under normal use and service for a period of seven (7) years from the date the product is first placed in service, or seven and one-half (7-1/2) years from the date of shipment by WATEROUS, whichever period shall be the first to expire; provided the Buyer notifies WATEROUS, in writing, of the defect in said product within the warranty period, and said product is found by WATEROUS to be nonconforming with the aforesaid warranty. When required in writing by WATEROUS, defective products must be promptly returned by Buyer to WATEROUS at WATEROUS' plant at South St. Paul, Minnesota, or at such other place as may be specified by WATEROUS, with transportation and other charges prepaid. A Returned Material Authorization (RMA) is required for all products and parts and may be requested by phone, fax, email, or mail. The aforesaid warranty excludes any responsibility or liability of WATEROUS for:

- (a) damages or defects due to accident, abuse, misuse, abnormal operating conditions, negligence, accidental causes, use in non-firefighting applications, or improper maintenance, or attributable to written specifications or instructions furnished by Buyer;
- (b) defects in products manufactured by others and furnished by WATEROUS hereunder, it being understood and agreed by the parties that the only warranty provided for such products shall be the warranty provided by the manufacturer thereof which, if assignable, WATEROUS will assign to Buyer, if requested by Buyer;
- (c) any product or part, altered, modified, serviced or repaired other than by WATEROUS, without its prior written consent;
- (d) the cost of dismantling, removing, transporting, storing, or insuring the defective product or part and the cost of reinstallation; and
- (e) normal wear items (packing, strainers, filters, light bulbs, anodes, intake screens, mechanical seals, etc.).

**ALL OTHER WARRANTIES ARE EXCLUDED, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER CAUSE OF ACTION, SHALL WATEROUS BE LIABLE FOR ANY PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR PERSONAL INJURY OR PROPERTY DAMAGES.**

The exclusive remedy of Buyer and the sole liability of WATEROUS, whether based on contract, warranty, tort or any other basis of recovery whatsoever, is expressly limited at the election of WATEROUS to:

- (a) the replacement at the agreed point of delivery of any product or part, which upon inspection by WATEROUS or its duly authorized representative, is found not to conform to the limited warranty set forth above, or
- (b) the repair of such product or part, or
- (c) the refund or crediting to Buyer of the net sales price of the defective product or part.

**BUYER'S REMEDIES CONTAINED HEREIN ARE EXCLUSIVE OF ANY OTHER REMEDY OTHERWISE AVAILABLE TO BUYER.**

Waterous Company  
125 Hardman Avenue South  
South St. Paul, MN 55075 USA  
[www.waterousco.com](http://www.waterousco.com)

**WATEROUS**



# 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:

<b>Coverage:</b>	<b>Stainless steel piping shall be free from structural failures caused by defects in material and workmanship, or perforation caused by corrosion.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Ten (10) Years - or - 100,000 Miles</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the stainless steel piping or components which Pierce determines to have failed due to defective material and workmanship, or perforation caused by corrosion.</b>  <b>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.</b>

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

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

- (a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;
- (b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;
- (c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or
- (d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

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

### 2. DISCLAIMERS OF WARRANTIES

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

### 3. BUYER'S EXCLUSIVE REMEDY

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

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

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

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



One (1) Year Material and Workmanship Foam System & Five (5) Year Material and Workmanship Control Head

Limited Warranty

1. LIMITED WARRANTY

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

Coverage:	Limited warranty 1 year parts and labor for the foam system and 5 years parts and labor for the control head.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	One (1) Year & Five (5) Year
Conditions and Exclusions:  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>

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

## 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:

<b>Coverage:</b>	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
<b>Warranty Begins:</b>	The date of the original purchase invoice (issued when the product ships from the factory).
<b>Warranty Period Ends After:</b>	Twenty (20) Years - or - 100,000 Miles
<b>Conditions and Exclusions:</b>  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.**

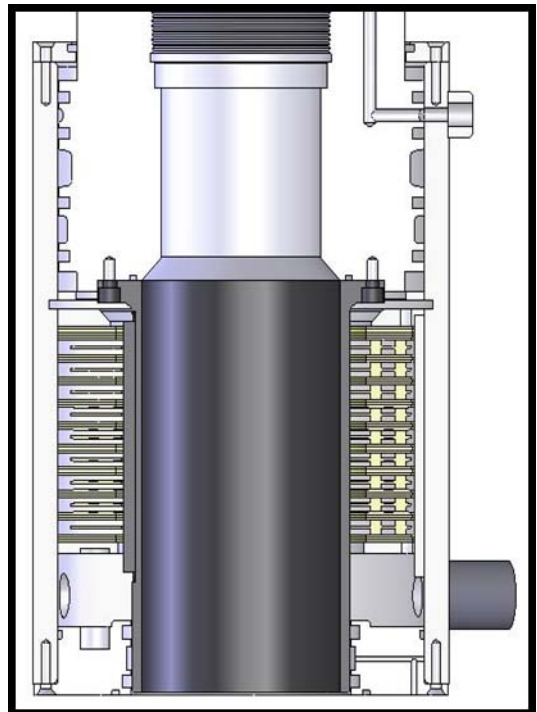
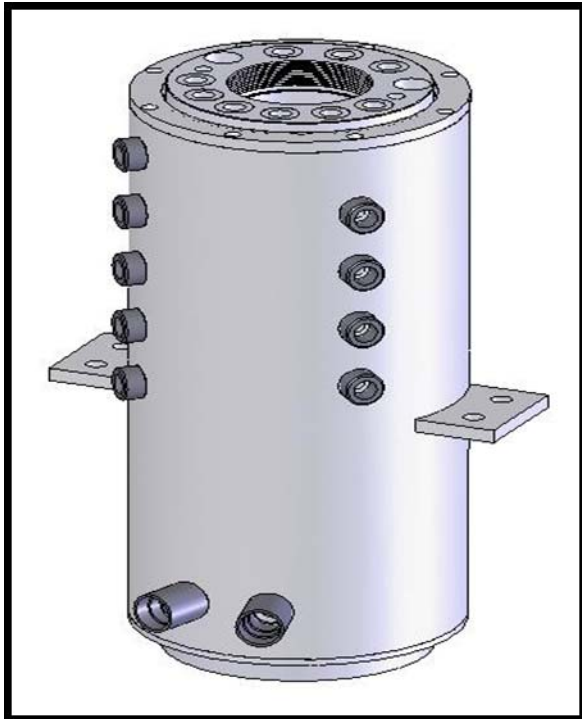
1. The Three Function Swivel is warranted to be free of defects in labor and/or materials for a period of five (5) years from the Date of Service. For purposes here, "Date of Service" shall mean the date when the Three Function Swivel, or the unit to which the Three Function Swivel is incorporated, passes 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.

8. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
9. Amity will not be held liable for damage incurred during shipment.
10. No responsibility shall be assumed for misuse or improper mounting, unreasonably use or abuse of the Three Function Swivel and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

**THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF FIVE YEARS IS FROM THE DATE OF SERVICE WITH THE UNDERSTANDING IT IS INSTALLED WITHIN A REASONABLE TIME PERIOD.**

Dated: \_\_\_\_\_, 20\_\_







# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship Aerial Hydraulic System Components

## Three (3) Year Material and Workmanship Aerial Hydraulic System Seals

# Limited Warranty

### 1. LIMITED WARRANTY

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

<b>Coverage:</b>	<b>The aerial hydraulic system components and seals shall be free from component or structural failures caused by defects in material and/or workmanship.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Five (5) Years and Three (3) Years</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the hydraulic lines, fittings, valves, seals, cylinders, filters, pumps, hydraulic motors, rotary actuators, or components which Pierce determines to have failed due to defective material and workmanship.</b>  <b>This warranty shall not apply unless the aerial device is inspected in accordance with NFPA 1911 Standard for Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus and the applicable Pierce Operator and Maintenance Manuals.</b>

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

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

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

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

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

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

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

### 2. DISCLAIMERS OF WARRANTIES

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

### 3. BUYER'S EXCLUSIVE REMEDY

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

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

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

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



## AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD  
ALBURTIS, PA 18011-0451  
Phone: 610-966-3115  
Fax: 610-965-6313

### \* STANDARD TEN YEAR WARRANTY \*

(standard warranty is in effect for parts shipped after 4/15/10)

#### Telescopic Waterways

**A. PRESHIPMENT TESTING** All waterways fabricated by Amity are final inspected using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.

#### **B. COMPONENTS DESCRIPTION AND MAINTENANCE**

1. All components are thoroughly greased at assembly. Since internally lubricated seals are used, regular greasing is not required. We recommend components not be greased at installation.
2. Slip Tube Assemblies may be greased at the Amity's regularly scheduled Aerial Inspections. The seals in the Slip Tube Assemblies are self-lubricating, so greasing is not mandatory. We do recommend a visual inspection of the Slip Tube Assembly while it is fully extended after initial installation, from that point on we recommend inspection every ten hours of aerial operation. If any deposits of aluminum appear, they are to be rubbed off using a Teflon scouring pad. Slip Tube Assemblies are designed to give long maintenance free service; however, like any product, problems may occur and periodic visual inspections will aid in determining if a potential problem exists and warrants a call to us. Care must be taken to keep debris off of extended tubes. We recommend wiping tubes with light oil (10 weight) or hydraulic oil after use, if tubes appear to have contamination on them. Under no circumstance are tubes to be cleaned with lacquer thinner, or any other solvent.

#### **C. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.**

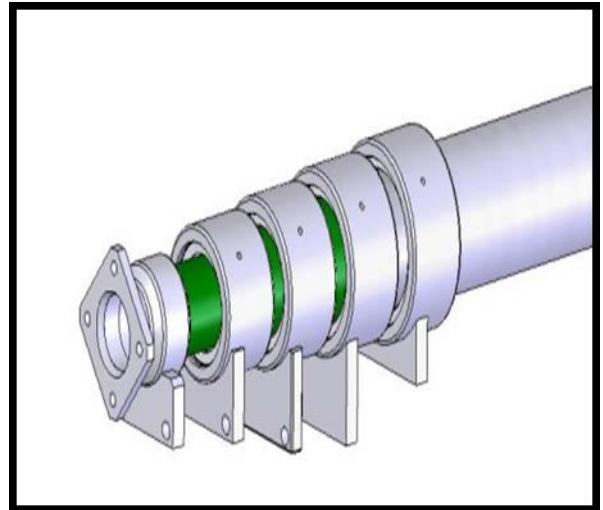
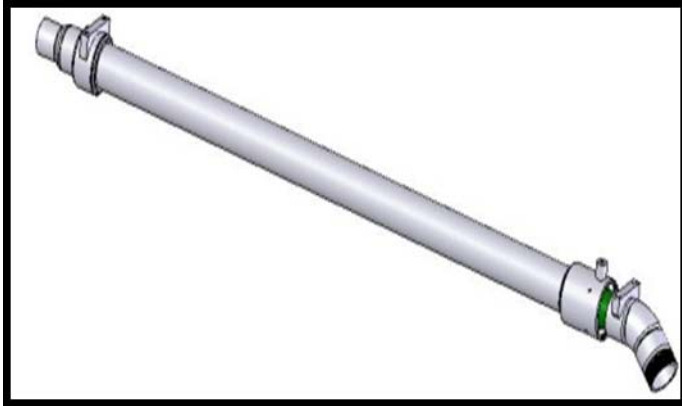
1. Products are warranted to be free of defects in labor and/or materials for a period of ten years from the date of purchase from the Amity and shall be repaired or replaced at the sole option and expense of the Amity provided the products alleged to be defective was used for its intended normal use operation and subject to the following qualifications and limitations.
2. Any alteration of product without consent from Amity is strictly forbidden and shall void warranty.
3. No welding shall be performed on finished product.
4. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water system such as, but not limited to stones, sand or metal chips.
5. Amity assumes responsibility for our product, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our product unless it agrees in writing to assume such responsibility.
6. Unless otherwise approved in writing by the Amity all returns of defective (or allegedly defective products) are at Purchaser's expense and must include a RGA number issued by the Amity.
7. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
8. Amity will not be held liable for damage incurred during shipment.
9. No responsibility shall be assumed for misuse or improper mounting, 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**

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:

<b>Coverage:</b>	<b>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.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Four (4) Years</b>
<b>Conditions and Exclusions:</b>	<p><b>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</b></p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b>                  0-24 months 100%                  25-48 months 50%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b>                  0-24 months 100%                  25-48 months 50%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b>                  0-24 months 100%                  25-48 months 50%</p> <p><b>Corrosion Perforation</b>                  0-24 months 100%                  25-48 months 50%</p> <p><b>This limited warranty applies only to exterior paint.</b></p> <p><b>Items not covered by this warranty include:</b>                  (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.*



# 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:

<b>Coverage:</b>	<b>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.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Ten (10) Years</b>
<b>Conditions and Exclusions:</b>	<p><b>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</b></p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b>                  0-72 months 100%                  73-96 months 50%                  97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b>                  0-36 months 100%                  37-84 months 50%                  85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b>                  0-36 months 100%                  37-48 months 50%                  49-72 months 25%                  73-120 months 10%</p> <p><b>Corrosion Perforation</b>                  0-120 months 100%</p> <p><b>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.</b></p> <p><b>Items not covered by this warranty include:</b>                  (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:

<b>Coverage:</b>	<b>Each Goldstar® gold leaf lamination shall be free from defects in material and workmanship.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Three (3) Years</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>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).</b>

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

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

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

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

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

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

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

**2. DISCLAIMERS OF WARRANTIES**

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**3. BUYER'S EXCLUSIVE REMEDY**

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

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

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

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

# **5 DEALER SUPPLIED PRODUCTS AND /OR SERVICES**

**Exhibit "D"**

**DEALER SUPPLIED EQUIPMENT and/or SERVICES**

The following items and/or services will be provided by Golden State Fire Apparatus Inc. (GSFA) and are shown PER UNIT unless otherwise noted:

**LICENSED MANUFACTURER**

The State of California Vehicle Code, section 11701 requires “every manufacturer of a vehicle subject to registration shall make application to the Department of Motor Vehicles (DMV) for a license containing a general distinguishing number”. The manufacturer has a current license at time of proposal and shall provide a copy upon request. Temporary licenses are not acceptable.

**LICENSED DEALERSHIP**

The State of California Vehicle Code, section 11701 requires a “dealer in vehicles of a type subject to registration, shall make application to the Department of Motor Vehicles (DMV) for a license containing a general distinguishing number”. Golden State Fire Apparatus, Inc. has a current license at time of bid as outlined above and is available upon request. Temporary licenses are not acceptable.

**LICENSED SALES REPRESENTATIVE**

The State of California Vehicle Code, section 11800 requires that it shall be “unlawful for any person to function as a vehicle salesperson without having first procured a license issued by the Department of Motor Vehicles (DMV)”. The representative has a current vehicle salespersons license at time of proposal and shall provide a copy upon request. Temporary licenses are not acceptable.

**WEEKLY PROGRESS REPORTS**

GSFA will provide weekly progress reports including photographs of the apparatus or the major components as they are being constructed. The reports will commence at the start of the manufacturing process and will continue through production by the manufacturer. The reports will show the progress of the apparatus through the course of each week. Special attention will be given to show the unique features and aspects of the apparatus as construction progresses.

**VEHICLE REGISTRATION**

The State of California Vehicle Code section 11739 requires that the “dealer of a new motor vehicle sale is responsible for applying for the title, securing vehicle registration, and obtaining license plates for the Customer” through the Department of Motor Vehicles (DMV). Golden State Fire Apparatus, Inc. is a factory-authorized dealer of the vehicle being sold and is authorized to register with the State of California as a new vehicle manufacturer.

GSFA will make all necessary applications and complete all transfer papers, including applying for California Exempt “E” license plates.

**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 GSFA and the Customer. Costs for airfare, lodging, meals, and ground transportation while at the manufacturer’s 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.

### **CONTINGENCY RESERVE FUND**

A contingency reserve fund in the sum of \$200,000 is included in the quotation to cover the cost of change orders, unforeseen items due to EPA 2027 motor compliance or required work that may come up during the contract to be used at the discretion of the City of Oroville. This reserve fund is not an estimate of those contingencies, and the cost of change orders, unforeseen items or required work could exceed the amount reserved depending on their nature. Any unused portion of this reserve fund will be credited back on the final invoice or returned in the form of a check to the City of Oroville promptly following final invoicing.

### **DELIVERY TO AUTHORIZED SERVICE FACILITY**

GSFA will, at their expense, deliver the apparatus (including any applicable equipment, spare parts, and supplies) to their Northern California facility in Sacramento for a dealer preparation inspection.

To ensure proper break in of all components while still under warranty, the apparatus shall be delivered under its own power - rail or truck freight shall not be acceptable.

### **PRE-DELIVERY SERVICE**

After transportation from the factory and prior to delivery, the apparatus will receive a pre-delivery service to confirm proper operation and correction of any issues found as a result of said inspection. The Golden State Fire Apparatus, Inc. pre-delivery service consists of the following:

- Engine Compartment and Undercarriage – Check for any broken mounting brackets and inspect for correct capacities of the following (if applicable): engine oil, coolant, power steering fluid, washer reservoir fluid, transmission fluid, rear end fluid, pump transmission oil, and primer oil.
- Interior – Operate all doors, windows, and locks for proper adjustment. Check upholstery.
- Exterior – Repair reasonable paint scratches or chips. Tighten any loose hardware and inspect tires and wheels for proper pressure and lug torquing.
- Road Test – With the water tank (if applicable) full, the apparatus will be driven approximately twenty miles which allows the drive train components to get up to operating temperature. Road test will be on both city and highway roads. A DOT compliant brake test will be conducted to ensure the system is holding air. The brake condition and wheel seals will also be inspected.
- Electrical - Operate all lights, sirens, and other electrical accessories to verify operation.
- Pump - If applicable, vacuum test the pump to hold for 15 minutes. After vacuum test, operate the relief valve, transfer valve and check pump shift. Check water tank for leaks and inspect water level gauge for calibration. With discharge caps loose, rapid test all individual gauges and main gauges for calibration. Lubricate valve rods.
- Foam System – If applicable, tighten caps and connect foam lines. Test selector, valves, metering valve and operation of foam system (including flush).
- Fuel Tank - Fuel tank will be filled at the dealership location prior to final delivery.

- DEF Tank - DEF tank will be filled at the dealership location prior to final delivery.
- Wash - The apparatus will be thoroughly washed at the dealership location prior to final delivery.

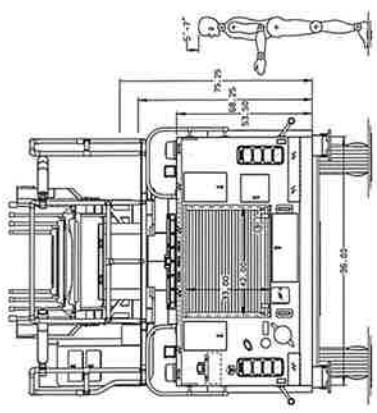
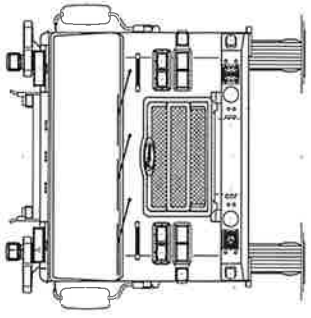
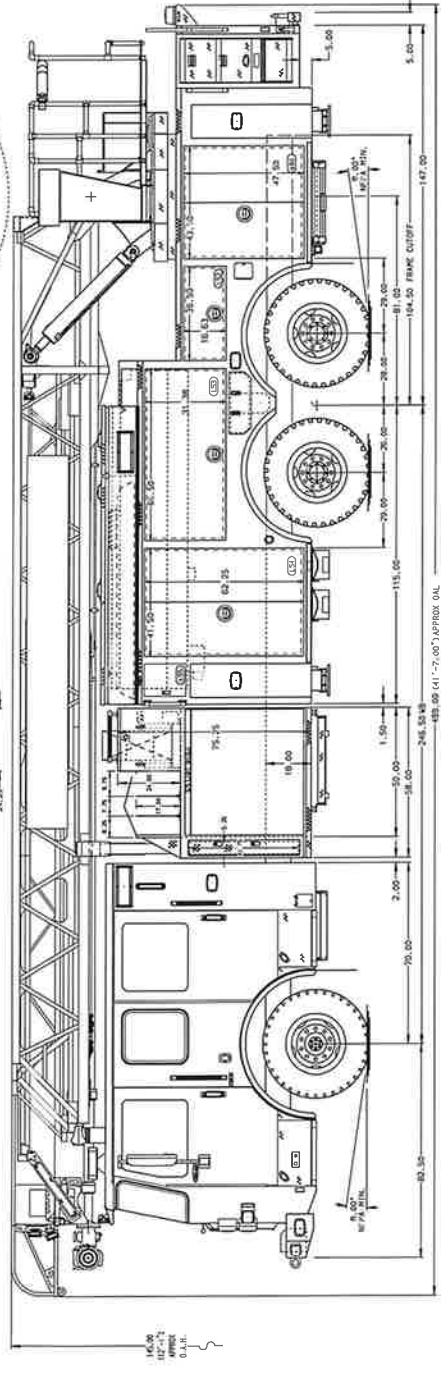
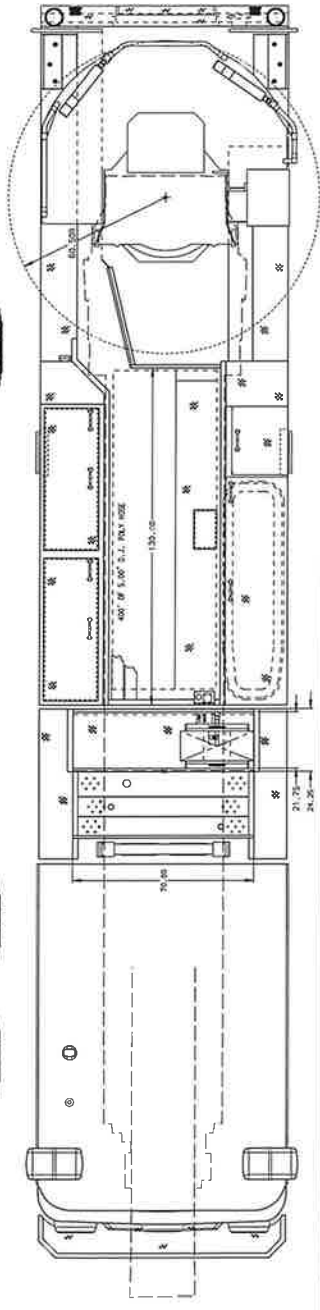
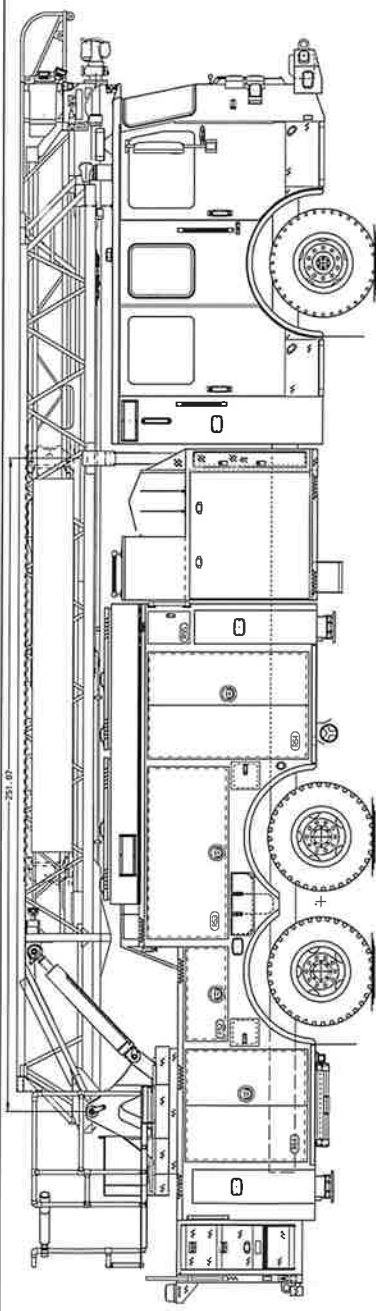
**FINAL DELIVERY (CUSTOMER LOCATION)**

GSFA will, at their expense, deliver the Product (including any applicable equipment, spare parts, and supplies) to the Customer specified address once completed. Prior to delivery of the Product, Customer agrees to provide proof of liability and physical damage insurance to GSFA. GSFA will not release the Product to the Customer until such proof of insurance is provided.

It is the responsibility of the Customer to have any outstanding balance due, paid in full to GSFA, prior to or at the time that the Product is complete and ready to deliver. 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 will not be delivered without full acceptance and full payment (or prior written agreement between the Customer and GSFA).

**END OF EXHIBIT "D"**



JOB NO.	PRELIM
SIZE	ONE
DATE	01MAY23
BY	04MAY23
CHECKED	04MAY23
APPROVED	04MAY23
NO.	70691

MANUFACTURING INC.	107' ASCENDANT AERIAL LADDER AND BODY ASSEMBLY
TITLE	300 GALLON WATER TANK
FOR	GROSVILLE, CITY OF
BY	BIT 750
CHECKED	HANSEN, BRAD
APPROVED	GOLDEN STATE P-FIRE APPARATUS, INC.
NO.	70691

**ALUMINUM BODY** MAXIMUM O.A.H. 144.00\* EXCEEDED (MIN A.O.A. 15\* MIN A.O.D. 10\*)

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

1. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES.  
 2. HOLE POSITIONAL TOLERANCE IS 0.005 INCHES.  
 3. HOLE POSITIONAL TOLERANCE IS 0.005 INCHES.

CHASSIS DATA  
 MAKE PIERCE  
 MODEL 750  
 BODY MANUFACTURED BY GOLDEN STATE P-FIRE APPARATUS, INC.  
 BODY NO. 70691  
 BODY DATE 04MAY23  
 BODY BY BIT 750  
 BODY CHECKED HANSEN, BRAD  
 BODY APPROVED G.S.P.A. 04MAY23

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.

Item 1.