

**ATTACHMENT C – MIDMOUNT SPECIFICATIONS**

**INTENT OF SPECIFICATIONS**

It is the intent of these specifications to obtain the best results and the most acceptable apparatus for service in the fire department. These specifications cover the general requirements as to the type of construction, together with certain details as to finish, equipment, and appliances with which the successful bidder must conform. Minor details of construction and materials which are not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. However, all designs and fabrications by the manufacturer must meet or exceed all NFPA and DOT standards that are applicable. The design and fabrication style of the structural members of the apparatus mentioned in this document are recommendations, not direct instructions unless specifically stated. These “structural members” include but are not limited to the frame, suspension, aerial, aerial waterway, and midmount platform. These shall meet or exceed the strength requirements and safety factors stated in the description. They shall be constructed with the long-term durability of the apparatus and the safety of its occupants and its users as a top priority. Given the intended severe duty use of the apparatus, any specification or design from a bidder that is deemed (by the purchaser) unsafe, unreliable, or one that reduces the overall lifetime and/or performance of the apparatus will not be accepted.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 50 years.

Each bidder shall furnish satisfactory evidence of his ability to construct the apparatus specified. The bidder shall also show that they can render prompt service and furnish replacement parts for said apparatus.

Aerials containing load ratings and capabilities of the highest level within the respective model class shall be accepted. Bids submitted containing medium-duty or light-duty aerial ladders shall not be considered as meeting minimum requirements and will automatically be rejected.

**CONTRACTOR'S SPECIFICATIONS**

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under the contract shall conform.

These specifications shall indicate the size, type, model, and make of all component parts and equipment.

The submitted bids shall clearly describe the capabilities of the aerial device. Items such as safety factor certification, horizontal reach, vertical reach, scrub chart information, load capabilities, flow ratings, monitor capabilities, short set capabilities, safety interlock information, estimated completed weight information and other pertinent information shall be either submitted with the bid or readily available if requested.

**TIMELY PROPOSALS**

It is the bidder's responsibility to see that their proposals arrive on time. Late proposals, facsimiles, emails, telegram, or telephone bids shall not be considered.

**DRAWINGS**

All bid drawings shall be stamped PROPOSAL.

- A total of six (6) drawings shall be supplied. The provided drawings can be printed to any paper size, but the scale will only be valid when printed to the paper size listed in the title block
- Drawings shall show five (5) views: left (drivers), right officers), front, rear, and top
- OAL (overall length) in feet and inches. The estimated length shall be rounded up to the nearest inch
- OAH (overall height) in feet and inches. The estimated height shall be rounded up to the nearest inch
- Wheelbase in inches
- Pump house width in inches
- Front of the body to the centerline of the rear axle in inches
- Front and rear overhang in inches
- The angle of approach and departure
- Roll-up doors will be shown in the open position. Lap doors will be shown in the closed position
- Compartment dimensions shall be shown in a table on the drawing.

The table shall display:

1. Clear door opening-The width/height of the clear door opening
2. Interior dimensions- The interior compartment dimensions excluding any accessories or pockets (i.e., roll-up door drums, hard suction hose pans, suspension pockets, etc.)
3. Divide heights- The measurement where the compartment changes from full depth to shallow depth
4. Compartment depths-Depth of the compartment with the door closed.

- Ground ladders shall be labeled with a letter designation referring to the table for an explanation of the ladder
- No pump panel or instrument panel controls, discharges, or inlets shall be shown. The panel space is to be left blank and labeled "Pump Panel"
- Rear plumbing, such as 2 1/2" discharges, rear steamers, and direct tank fills, shall be shown
- Water tank outline (if applicable)
- Water tank and foam cell fill towers (If applicable)
- Generator outline (if applicable)
- Warning lights
- D.O.T. lights

Text Block Items:

- Chassis make/model
- Fire pump's make/model
- Water tank capacity (if applicable)
- Foam cell capacity (if applicable)
- Body material
- Hose bed capacity in cubic feet (if applicable)
- Total compartment cubic feet
- Utilize a unique bid number
- Drawings shall be printed on white paper with black ink.

### **OBLIGATIONS**

We reserve the right to accept or reject any or all bids on such basis as the purchaser deems to be in its best interest. All bidders shall be advised that the purchaser is not bound in any manner to automatically accept the lowest bid. We shall only be obligated to purchase the lowest bid that meets these detailed specifications as closely as possible.

**SPECIALIZATION**

Due to the complexity of the apparatus proposed, the purchaser desires to obtain equipment that is built by companies that specialize in the construction following NFPA 1901, current edition compliant aerial devices.

The aerial device shall be engineered and fabricated by a manufacturer with a minimum of 40 years of experience in the aerial field. No exceptions shall be allowed.

No prototype devices or aerials without a proven field record shall be acceptable. The aerial device provided shall be of the highest quality available in the industry.

**LIABILITY**

The bidder, if their bid is accepted, shall defend all suits and assume all liability for the use of any patented process, device, or article forming a part of the apparatus or any appliance furnished under the contract.

**INFORMATION REQUIRED UPON DELIVERY**

The manufacturer shall supply at the time of delivery at least two copies of a complete operation and maintenance manual covering the completed aerial device as delivered.

Parts manuals, where possible, shall be cross referenced to show the actual manufacturer's name, part number, and description on all parts and fittings that are commercially available.

**DESIGN / CONSTRUCTION / TESTING CRITERIA**

The following criteria shall apply to this specification to the extent specified herein:

- NFPA 1901, Current Edition
- American Society for Testing and Materials (ASTM A36)
- Society of Automotive Engineers, Inc. (SAE) "SAE Handbook"
- American Welding Society (AWS) AWS D1.1 and D1.2
- American Welding Society (AWS) AWS D1.1 and D1.2
- American Society of Non-Destructive Testing (ASNT) "ASNT CP189"

The aerial ladder shall be designed, fabricated, and tested following the above codes and specifications, as well as all other applicable codes, standards, and specifications that may be referenced by any of the above.

**NON-DESTRUCTIVE TESTING**

Steel ladders, turntable, stabilizers, and torque box shall have 100% of all welds tested using both magnetic particle method and visual testing method. Aerials that are fabricated of aluminum shall have 100% of all welds tested using the dye penetrant method and visual method. All testing shall be performed by certified technicians, which are employees of an independent nationally recognized, and certified third-party testing company. Manufacturers who rely on visual inspection (either inhouse or by a third party) as the primary method of testing, and magnetic particle or dye penetrant as a secondary or "proving" test method for only suspect areas shall not be acceptable. In any case, welds shall be tested using two (2) separate NDT inspection methods regardless of the material used to construct the aerial device.

**THIRD-PARTY CERTIFICATION**

All bids shall include copies of the certification of testing of the aerial device. The purchaser desires a device that has been tested by a third party for compliance with the minimum 2 to 1 safety factor specified following NFPA 1901, current edition. Devices that have not been certified by a third-party engineering firm that is independent of the manufacturer shall not be acceptable.

### **AERIAL DEVICE SAFETY FACTOR AND RATED CAPACITY**

The purchaser desires to purchase, using these specifications, an aerial device with a minimum 2.0:1 Safety Factor as required and defined per NFPA 1901, current edition. Therefore, the aerial manufacturer shall hereby certify, by submitting a bid for these specifications that the aerial device meets or exceeds all requirements and conditions in these specifications.

### **BID FORMS / SPECIFICATIONS**

All bid forms shall be submitted on the attached bid form. The bid form and/or these specifications shall be filled out by checking either the "YES" or "NO" column for every section/paragraph. Failure to use this form and/or these specifications shall be cause for immediate rejection of any bid.

### **EXCEPTION TO SPECIFICATIONS**

The following chassis, pump, and body specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that specified and provided, they are listed and fully explained on a separate page entitled "EXCEPTIONS TO SPECIFICATIONS". Exception lists shall refer to the specification page number.

Each check in the "NO" column shall be listed and fully explained. Where no check is made in a particular paragraph either "YES" or "NO", it shall be assumed the bidder is taking exception to that paragraph. If a paragraph contains an empty column, where the bidder neglected to check the proper "YES" or "NO" column, it is assumed the bidder is not conforming to the requirements of this paragraph. If no explanation is given in the "EXCEPTIONS TO SPECIFICATIONS" document, the bid is subject to immediate rejection.

### **PROPOSALS TAKING TOTAL EXCEPTION TO THESE SPECIFICATIONS WILL BE IMMEDIATELY REJECTED.**

The buyer is aware that all bidders shall have to take some exceptions, therefore; **BIDDERS THAT TAKE NO EXCEPTIONS shall BE REQUIRED TO MEET EVERY PARAGRAPH TO THE FULLEST EXTENT SHOULD THEIR BID BE ACCEPTED.** It is the intent of the purchaser to receive bids that do not require telephone calls or other communications to ascertain what a bidder is intending to supply.

Upon delivery, the apparatus shall be inspected against these specifications and not those supplied by the bidder with their proposal. Deviations shall not be accepted unless noted as exceptions at the time of the bid. The apparatus shall be rejected until said deviations are corrected to the satisfaction of the buyer. Decisions regarding equal to or better than shall be the sole responsibility of the recipient of the bids rather than the companies submitting bids. All deviations regardless of significance must be explained in the "EXCEPTIONS TO SPECIFICATIONS" section of the bid.

When exceptions are not taken but inconsistencies are noted in the submitted detailed specifications, the bid may be rejected.

### **PROPOSAL SEQUENCE**

Bid specifications shall be submitted in the same sequence as these specifications for ease of checking compliance. No exceptions shall be allowed to this requirement. The apparatus committee intends to be

thorough during the evaluation of the bidding process. To maximize efficiency and minimize time to thoroughly evaluate all received bids, this requirement must be strictly enforced.

### **AWARD OF CONTRACT**

All bids submitted shall be valid for a minimum of 30 days during which time bid securities submitted with the proposals shall be held. Criteria for the award shall include, but not be limited to, the following:

- Apparatus Performance and Safety Levels / Considerations
- Completeness of proposal
- Accuracy of accompanying data
- Past performance of the bidder
- Compliance with the detailed specifications
- Compliance with purchaser's request(s) for personnel qualifications or certifications
- Exceptions and clarifications
- Financial stability of bidder
- Local representation of the manufacturer
- Serviceability of the proposed apparatus
- Service capabilities of the bidder's local representative
- Compliance with NFPA 1901, current edition
- Any other factor the purchaser deems relevant

After the evaluation and award process is complete, all bidders shall be notified of the results and securities shall be returned.

### **PREREQUISITE BIDDING REQUIREMENTS**

Any manufacturer submitting a proposal or bid, to these specifications, shall meet the following conditions:

- The manufacturer of the apparatus herein specified, shall be wholly owned (100%) and managed by a Company, Corporation, and/or Parent Company that is wholly based and permanently resides in the United States of America.
- The Company, Corporation, and/or Parent Company, and all assets belonging to such, shall be wholly owned and managed (100%) by the entities specified above.
- Any proposal, bid, or response to these specifications by any foreign-based, owned, or managed (in part or whole) Company, Corporation, and/or Parent Company shall be cause for immediate rejection. Any proposal, bid, or response to these specifications by any Company, Corporation, and/or Parent Company, that is owned, operated, managed, or held in contract, in part or wholly by a partnership or other agreement, shall be cause for immediate rejection.
- Exceptions to these conditions will not be allowed under any circumstances.

**General:** Midmount Specifications

**BIDDER MUST FILL IN BLANKS TO INDICATE COMPLIANCE, OR STATE EXCEPTION FOR OUR ACCEPTANCE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY RENDER YOUR BID UNRESPONSIVE.**

**1. Bidder Name:** \_\_\_\_\_

**2. Body:** \_\_\_\_\_ **Make:** \_\_\_\_\_ **Model:** \_\_\_\_\_ **Year:** \_\_\_\_\_

<b>1.0</b>	<b><u>SAFETY REQUIREMENTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>1.1</b>	It is required that the bidder shall meet all State and Federal safety standards and laws that are in effect on the date of the bid for the item(s) that are specified and the particular use for which they are meant.			
<b>2.0</b>	<b><u>ACQUAINTANCE WITH SPECIFICATIONS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>2.1</b>	It is the responsibility of the bidder to review all the bidding requirements. Failure of a bidder to be acquainted with this information shall not relieve them from any obligations of the bid requirements.			
<b>3.0</b>	<b><u>QUALITY AND WORKMANSHIP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>3.1</b>	The design of the apparatus shall embody the latest approved automotive engineering practices. Experimental Designs and methods shall not be acceptable. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: accessibility of the various units that require periodic maintenance, ease of operation (including pumping and driving), and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry loads as specified.			
<b>4.0</b>	<b><u>GENERAL CONSTRUCTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>4.1</b>	The complete apparatus, assemblies, subassemblies, parts, etc., shall be designed and constructed with due consideration to the nature and distribution of the load to be sustained and to the general character of service to which the apparatus is to be subjected when placed in service.			
<b>4.2</b>	All parts of the apparatus shall be strong enough to withstand the general service under full load. The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment, and repair. The apparatus shall be designed and constructed, and the equipment mounted, with due consideration to the distribution of the load between the front and rear axles, and side-to-side loading that all specified equipment, including a full complement of specified ground ladders, full water tank, loose equipment, and firefighters; shall be carried without overloading or damaging the apparatus following NFPA 1901, current edition requirements.			

## Section Three Specifications

5.0	<b><u>ROADABILITY</u></b>	YES	NO	EXCEPTIONS / NOTES
5.1	<p>The apparatus, when fully equipped and loaded, shall be capable of the following performance while on dry paved roads that are in good condition:</p> <ul style="list-style-type: none"> <li>• Accelerating from 0 to 35 mph within 25 seconds on a 0 percent grade</li> <li>• Attaining a speed of 50 mph on 0 percent grade</li> <li>• Maintaining a speed of at least 20 mph on any grade up to and including 6 percent</li> <li>• The maximum top speed of the apparatus shall not exceed the tire manufacturer's maximum speed rating for the tires installed on the apparatus</li> </ul>			
6.0	<b><u>FAILURE TO MEET TESTS</u></b>	YES	NO	EXCEPTIONS / NOTES
6.1	<p>In the event the apparatus fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the bidder within 30 days of the date of the first trials.</p> <p>Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes as required to conform to any clause of the specifications within 30 days after the notice is given to the bidder of such changes, shall be cause for rejection of the apparatus.</p> <p>Permission to keep or store the apparatus in any building owned or occupied by the department during the specified period, with the permission of the bidder, shall not constitute acceptance.</p>			
7.0	<b><u>NFPA 1901-2016</u></b>	YES	NO	EXCEPTIONS / NOTES
7.1	<p>The National Fire Protection Association "Standard for Automotive Fire Apparatus", 2016 edition, is hereby adopted and made a part of these specifications, the same as if it were written out in full detail, except for the section dealing with "Equipment Recommended for Various Types of Apparatus". Bidders shall provide the equipment requested herein and the buyer shall supply the rest before the apparatus is put into service. It is the intent of the purchaser to purchase an apparatus that meets 100% of the minimum standards defined and outlined in NFPA 1901-2016 edition. There are to be no exceptions to this requirement.</p>			
8.0	<b><u>INSPECTION CERTIFICATE NFPA 1901 COMPLIANCE</u></b>	YES	NO	EXCEPTIONS / NOTES
8.1	<p>An OEM inspection certificate for the apparatus shall be furnished upon delivery. The purpose of this NFPA 1901 compliance inspection shall be to serve as proof to the customer that all applicable standards have been met or exceeded by the responsible manufacturer.</p>			



8.2	<p>The following objectives shall be achieved as a result (this listing shall not be construed as being all-inclusive):</p> <ul style="list-style-type: none"> <li>• Ensure that understanding of all parties' respective responsibilities has been addressed by the actual referencing of NFPA 1901 and the amendments in these specifications and the purchase contract and documentation.</li> <li>• Ensure that only structural materials complying with appropriate standards and codes are used for construction.</li> <li>• Ensure the applicable standards of design and manufacturing have been met or exceeded.</li> <li>• Ensure that safety factors have been met or exceeded where required.</li> <li>• Ensure that applicable standards for testing and inspection have been met or exceeded by personnel with the appropriate qualifications, experience, and certifications.</li> <li>• Ensure that where applicable components, equipment, and loose equipment carry the appropriate characteristics, classifications, and/or certifications.</li> <li>• Ensure that all applicable requirements outlined in NFPA 1901, and those codes, standards, and specifications referenced by said parties are met, exceeded, and/or addressed.</li> </ul>			
9.0	<b><u>NFPA CONSTRUCTION DOCUMENTATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
9.1	<p>The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents:</p> <p>The manufacturer's record of apparatus construction details, including the following information:</p> <ul style="list-style-type: none"> <li>• Owner's name and address</li> <li>• Apparatus manufacturer, model, and serial number</li> <li>• Chassis make, model, and serial number</li> <li>• GAWR of front and rear axles</li> <li>• Front tire size and total rated capacity in pounds or kilograms</li> <li>• Rear tire size and total rated capacity in pounds or kilograms</li> <li>• Chassis weight distribution in pounds with water and manufacturer-mounted equipment (front and rear)</li> <li>• Engine make, model, serial number, rated horsepower, related speed, and governed speed</li> <li>• Type of fuel and fuel tank capacity</li> <li>• Electrical system voltage and alternator output in amps</li> <li>• Battery make, model, and capacity in cold cranking amps (CCA)</li> <li>• Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio</li> <li>• If applicable, the pump make, model, rated capacity in gallons or liters per minute, and serial number</li> <li>• Pump transmission make, model, serial number, and gear ratio.</li> </ul>			



9.2	<ul style="list-style-type: none"> <li>• If applicable, the auxiliary pump make, model, rated capacity in gallons or liters per minute, and serial number</li> <li>• Water tank certified capacity in gallons or liters</li> <li>• On aerial apparatus, the device type rated vertical height in feet or meters, rated horizontal reach in feet or meters, and rated capacity in pounds or kilograms</li> <li>• Paint manufacturer and paint number(s)</li> <li>• Company name and Signatures of responsible company representative</li> <li>• Certification of slip resistance of all stepping, standing, and walking surfaces</li> </ul> <p>If the apparatus has a fire pump, a copy of the following shall be provided:</p> <ul style="list-style-type: none"> <li>• Pump manufacturer's certification of suction capability</li> <li>• Apparatus manufacturer's approval for stationary pumping applications</li> <li>• Engine manufacturer certified brake horsepower curve showing the maximum governed speed.</li> <li>• Pump manufacturers certification of the hydrostatic test</li> <li>• The certification of inspection and test for the fire pump.</li> <li>• If the apparatus has an aerial device, the certification of inspection and test for the aerial device, and all the technical information required for inspections to comply with NFPA 1914, Standard for Testing Fire Department Aerial Devices.</li> <li>• If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source.</li> <li>• If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation.</li> <li>• Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)</li> <li>• Written load analysis and results of the electrical system performance tests.</li> <li>• When the apparatus is equipped with a water tank, the certification of water tank capacity</li> </ul>			
<b>10.0</b>	<b><u>OPERATION AND SERVICE DOCUMENTATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
10.1	<p>The contractor shall supply at the time of delivery, at least two (2) sets of complete operation and service documentation covering the completed apparatus as delivered and accepted. The documentation shall address at least the inspection, service, and operations of the fire apparatus and all major components thereof. The contractor shall also provide documentation of the following items for the entire apparatus and each major operating system or major component of the apparatus:</p>			

10.2	<ul style="list-style-type: none"> <li>• Manufacturer's name and address</li> <li>• Country of manufacturer</li> <li>• Source of service and technical information</li> <li>• Parts and replacement information</li> <li>• Descriptions, specifications, and ratings of the chassis, pump, and aerial device</li> <li>• Lubrication charts</li> <li>• Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems</li> <li>• Precautions related to multiple configurations of aerial devices, if applicable</li> <li>• Instructions regarding the frequency and procedure for recommended maintenance</li> <li>• Overall apparatus operating instructions</li> <li>• Safety considerations</li> <li>• Limitations of use</li> <li>• Inspection procedures</li> <li>• Recommended service procedures</li> <li>• Troubleshooting guide</li> <li>• Apparatus body, chassis, and other component manufacturer's warranties</li> <li>• Special data required by this standard</li> <li>• Copies of required manufacturer test data or reports, manufacturer certifications, and independent third party certifications of test results</li> <li>• A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus</li> <li>• One (1) copy of the FAMA Safety Guide</li> </ul> <p>Wiring diagrams for low voltage and line voltage systems to include the following information:</p> <ul style="list-style-type: none"> <li>• Representations of circuit logic for all electrical components and wiring</li> <li>• Circuit identification</li> <li>• Connector pin identification</li> <li>• Zone location of electrical components</li> <li>• Safety interlocks</li> <li>• Alternator battery power distribution circuits</li> <li>• Input/ output assignment sheets or equivalent circuit logic implemented in multiplexing systems</li> </ul> <p>The contractor shall deliver with the apparatus all manufacturers' operations and service documents supplied with components and equipment that are installed or supplied by the contractor.</p>			
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## Section Three Specifications

11.0	<b><u>STATEMENT OF EXCEPTIONS</u></b>	YES	NO	EXCEPTIONS / NOTES
11.1	<p>The proposed apparatus as described in this specification document and all related material with the bid package shall meet or exceed all applicable sections for the category of apparatus as defined by NFPA 1901 unless specifically noted within this specification or other official documents associated with this bid.</p> <p>Should any area, section, or portion of the apparatus not meet the intent and applicable requirements, a clearly defined listing or explanation of what and why compliance was not achieved shall be provided to the purchaser at the time of delivery.</p>			
12.0	<b><u>OWNER'S MANUAL</u></b>	YES	NO	EXCEPTIONS / NOTES
12.1	An owner's manual containing the construction, operation, and service documentation shall be provided on a USB Drive. One (1) copy of the USB shall be provided with the apparatus.			
13.0	<b><u>ELECTRICAL MANUAL</u></b>	YES	NO	EXCEPTIONS / NOTES
13.1	A complete electrical manual for the apparatus shall also be provided on the USB Drive. This manual shall be specifically prepared for this individual unit rather than a generic schematic manual designed to accommodate all apparatus. The electrical manual shall also include electrical schematics, harness layouts, Multiplex display specifications (including Node Input/output Spreadsheet and Node Relationship Spreadsheet), and Master Wire Listing. A contact letter shall also be provided by the electrical engineer, who built the manual, with instructions on using the manual and contact information for assistance with electrical manual questions.			
14.0	<b><u>ELECTRICAL SCHEMATICS</u></b>	YES	NO	EXCEPTIONS / NOTES
14.1	A section of the electrical manual shall include schematics of the electrical system and components of the apparatus. These schematics shall be specifically prepared for this individual unit rather than a generic schematic designed to accommodate all apparatus.			
15.0	<b><u>PUMP PLUMBING SCHEMATICS</u></b>	YES	NO	EXCEPTIONS / NOTES
15.1	A section of the electrical manual shall include a schematic of the pump plumbing. This schematic shall be specifically prepared for this individual unit rather than a generic schematic designed to accommodate all apparatus.			
16.0	<b><u>HYDRAULIC SCHEMATICS</u></b>	YES	NO	EXCEPTIONS / NOTES
16.1	<p>A section of the electrical manual shall include schematics of the hydraulic components on the apparatus including but not limited to:</p> <ul style="list-style-type: none"> <li>• Aerial Retraction/Extension</li> <li>• Aerial Rotation</li> <li>• Tiller HVAC Hydraulics System</li> </ul>			
17.0	<b><u>FIRE APPARATUS SAFETY GUIDE</u></b>	YES	NO	EXCEPTIONS / NOTES
17.1	One (1) printed copy of the FAMA Fire Apparatus Safety Guide shall be provided with the apparatus. This guide provides safety instructions for operations of the fire apparatus.			

18.0	<b><u>AERIAL OPERATION/PARTS/MAINTENANCE MANUALS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
18.1	<p>One (1) printed aerial operation and maintenance manual shall be provided with the apparatus at the time of delivery. These manuals shall be written in a "step-by-step" format for ease of reference. One (1) USB shall be provided with a digital copy of the aerial manuals included with the printed version. Finally, a digital version of the aerial manuals will also be included with the complete Owner's Manual USB for the apparatus.</p> <p>Information included in the manuals shall include, but not be limited to the following:</p> <ul style="list-style-type: none"> <li>• Manufacturer Defined Terminology; (To help impart a full understanding of the terminology used in the manuals)</li> <li>• Safety Information and Warnings; (To warn of dangerous conditions/personnel injury/equipment damage)</li> <li>• Complete Rated Capacities Information; (Allowable loads and GPM flows)</li> <li>• Complete and Detailed Operating Systems Descriptions; (To impart an understanding of operation/capabilities/working principles)</li> <li>• Instruction For Manufacturer Recommended Deployment and Operation of All Systems During All Specific Conditions; (To ensure safer, more efficient operation of the aerial device)</li> <li>• Current, Actual Illustrations of Aerial Components Throughout the Manual; (To aid in the location of specific components, being addressed in the manual)</li> <li>• Complete Maintenance Instructions/Methods/Materials/Intervals/Inspections.</li> </ul>			
19.0	<b><u>AERIAL PLATFORM DEVICE DEMONSTRATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
19.1	<p>A factory-trained and authorized instructor shall provide on-site classes after apparatus acceptance. Topics covered in the class shall include:</p> <ul style="list-style-type: none"> <li>• General familiarization and demonstration of the aerial device</li> <li>• Aerial apparatus safety including a review of all safety devices, interlocks, and operational hazards</li> <li>• Positioning and locating the vehicle for safe operations</li> <li>• Chassis parking brakes and engagement of hydraulic system</li> <li>• Deployment of stabilization devices and use of ground pads</li> <li>• Operation of elevation, extension, and rotation of the aerial device</li> <li>• Operation of waterway, nozzle, and other firefighting devices of the aerial device</li> <li>• Operation and use of breathing air system</li> <li>• Specific aerial device maintenance and service areas for operators</li> <li>• Shutdown and return to service operations</li> <li>• Operation of tip controls and platform controls if equipped</li> <li>• Classes shall consist of presentations as well as Hands-on demonstrations.</li> </ul>			

## Section Three Specifications

20.0	<b><u>EQUIPMENT ALLOWANCE</u></b>	YES	NO	EXCEPTIONS / NOTES
20.1	The Gross Axle Weight Rating (GAWR) and the Gross Combined Weight Rating (GCWR) or Gross Vehicle Weight Rating (GVWR) of the chassis shall be adequate to carry the weight of the unequipped apparatus with the water tank and other tanks full, specified hose load, unequipped personnel weight, ground ladders, and miscellaneous equipment allowance of 2,500 pounds.			
21.0	<b><u>TILT TABLE TESTING IS NOT REQUIRED</u></b>	YES	NO	EXCEPTIONS / NOTES
21.1	A similar apparatus has previously passed the NFPA requirement of maintaining a stability of 26.5 degrees in both directions.			
22.0	<b><u>VEHICLE STABILITY</u></b>	YES	NO	EXCEPTIONS / NOTES
22.1	<p>The apparatus shall comply in accordance with NFPA 1901, current edition requirements as it applies to vehicle stability. The apparatus as described in the specification provided within the bid package shall be classified into one of the following categories:</p> <ul style="list-style-type: none"> <li>• The apparatus shall go through actual tilt table testing which shall be determined by the apparatus manufacturer.</li> <li>• The apparatus shall be equipped with a rollover stability control system as defined in section 4.13.1.2 of NFPA 1901.</li> <li>• The apparatus shall be deemed a similar apparatus and meet the intent of section 4.13.1.1.2 of NFPA 1901.</li> </ul>			
23.0	<b><u>INDEPENDENT THIRD-PARTY PUMP CERTIFICATION</u></b>	YES	NO	EXCEPTIONS / NOTES
23.1	<p>The fire pump shall be tested and certified by an independent third-party testing company.</p> <p>Tests shall be conducted so that the pump performs as listed below:</p> <ul style="list-style-type: none"> <li>• 100% of rated capacity at 150 pounds net pressure</li> <li>• 70% of rated capacity at 200 pounds net pressure</li> <li>• 50% of rated capacity at 250 pounds net pressure</li> <li>• 100% of rated capacity at 165 pounds net pressure</li> </ul> <p>The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined in accordance with NFPA 1901, current edition. The pump shall be free from objectionable pulsation and vibration.</p>			
24.0	<b><u>PUMP CERTIFICATION</u></b>	YES	NO	EXCEPTIONS / NOTES
24.1	The pump shall be certified in U.S. gallons per minute (GPM).			

<b>25.0</b>	<b>PERFORMANCE BOND AND PAYMENT BOND- 100%</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>25.1</b>	<p>The manufacturer shall provide, within thirty (30) days after award of contract, and along with a signed copy of the contract, a performance bond, which guarantees performance of all terms and conditions of the contract and of the Basic One (1) Year Limited Warranty agreement, and a payment bond, which shall guarantee payment for labor, materials, and equipment furnished for use in the performance of the contract. The performance bond will specifically cover the performance of the contract according to its terms and conditions. The payment bond will cover payment of labor, materials, and equipment furnished for use in the performance of the contract. This performance bond and payment bond will be issued by a surety company who is listed by the U.S. Treasury Department's list of approved sureties, as published in Circular 570, as of the bid date. The performance bond and payment bond will be issued in an amount equal to 100% of the contract amount and will be dated concurrent to, or subsequent to, the date of the contract.</p> <p>Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.</p>			
<b>26.0</b>	<b>ONLINE CUSTOMER INTERACTION</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>26.1</b>	<p>The customer shall be able to view digital photos of their apparatus in the specified phases of construction.</p> <p>The following phases will be captured and displayed:</p> <ul style="list-style-type: none"> <li>• Chassis arrival to the OEM</li> <li>• Fabrication</li> <li>• Pump and Plumbing</li> <li>• Paint</li> <li>• Assembly</li> <li>• Completion of production</li> </ul> <p>The photos shall be uploaded to a secure website, only accessible to the customer and representatives of the OEM.</p>			

<b>27.0</b>	<b><u>PRE-CONSTRUCTION MEETING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>27.1</b>	<p>A pre-construction meeting shall be held at the manufacturer's facility at a time agreed upon between department officials and the dealership. The pre-construction meeting is the most important meeting during the after-sale production process. The purpose of this meeting is to finalize all aspects of the specifications, discuss and clarify all design details of the apparatus, and share or provide all information so all parties agree on the apparatus being constructed. The goal of the pre-construction meeting is for the purchaser and dealer representative(s) to discuss and clarify all aspects of the proposed apparatus and to provide all necessary information to the apparatus manufacturer that shall ensure the apparatus is built to the satisfaction of all parties involved.</p> <p>The apparatus manufacturer shall create and forward to the dealer a "Pre-construction" document containing the following items:</p> <ul style="list-style-type: none"> <li>• Complete specifications of the apparatus including the chassis</li> <li>• Detailed amps draw report</li> <li>• Listing of clarifications or questions from the manufacturer that require attention (shelf locations, lettering details, etc.)</li> <li>• A total of six (6) packets of 11" x 17" drawings, each packet complete with a single view</li> <li>• All drawings shall be drawn and printed to an appropriate scale to maximize the size of the apparatus on each 11" x 17" sheet of paper.</li> </ul> <p>During this preconstruction meeting, any changes or clarifications must be documented on a manufacturer-issued change order. The change order shall be signed by the customer and dealership and ultimately by the apparatus manufacturer. The change order becomes an extension of the contract with the official signatures of all three parties. All change order items resulting from the preconstruction meeting shall be implemented into the official shop order document. The successful bidder shall be responsible for the cost of (4) department members for an inspection trip(s) that will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.</p>			
<b>28.0</b>	<b><u>SALES TERMS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>28.1</b>	The sale of the chassis shall be governed by the terms contained in the Sales Terms			



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29.0	<b><u>MID-POINT INSPECTION</u></b>	YES	NO	EXCEPTIONS / NOTES
29.1	An inspection of the apparatus in production by the customer shall be at the apparatus manufacturer's facility. The customer shall be allowed to visually inspect the apparatus so that any discrepancies may be addressed. A company representative shall be present at the inspection to answer all questions. Adequate notice shall be given to the dealer as to when the apparatus will be available for inspection. The successful bidder shall be responsible for the cost of (4) department members for an inspection trip(s) that will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.			
30.0	<b><u>FINAL INSPECTION</u></b>	YES	NO	EXCEPTIONS / NOTES
30.1	The department/dealer representative will inspect the final apparatus before it leaves the apparatus body manufacturer's facility. This will allow any changes that may be required, to be done so promptly. After leaving the facility, all repairs or alterations will be performed by either the dealer or an OEM-approved service center. The successful bidder shall be responsible for the cost of (4) department members for an inspection trip(s) that will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.			
31.0	<b><u>ADDITIONAL REQUIREMENTS</u></b>	YES	NO	EXCEPTIONS / NOTES
31.1	<p>The City of Charlotte desires to purchase the apparatus from a dealer who meets the following minimal requirements: Dealer and or the dealer principal shall have a minimum of ten (10) year experience with the apparatus manufacturer.</p> <p>Dealer shall have a brick-and-mortar service center with full capabilities to perform mechanical, chassis, pump, electrical and other general warranty adjustments within thirty (30) miles of Charlotte Fire Department Headquarters, located at 500 Dalton Ave, Charlotte, NC.</p> <p>Service center shall employ at least two (2) EVT Master Certified technicians and have full mobile capabilities.</p> <p>Service center shall employ one (1) Cummins certified technician in each of the following platforms, ISL9, ISX12 and ISX15.</p> <p>Service center mobile capabilities shall also be available twenty-four (24) hours per day, 365 days per year. This information shall be provided in writing to the buyer indicating a minimum one (1) hour response to any out of service condition for any vehicles covered under warranty.</p>			

31.2	<p>If the afore mentioned service capabilities are not able to be met, the City of Charlotte Fleet Management technicians shall be afforded the opportunity to become factory trained to affect warranty repairs. Any warranty repairs shall be repaid to the City of Charlotte, Charlotte Fire Department and/or the City of Charlotte Fleet Management Division.</p> <p>Completion time of apparatus from time of order placement to final delivery to the customer shall not exceed sixteen (16) months or 480 days. Twelve (12) months or 365 days to Fourteen (14) months or 420 days is a customer preferred construction period, however a two (2) month allowance will also be considered. Adhering to this construction schedule will allow the customer to maintain their apparatus replacement schedule.</p> <p>Whether in the cab, body or chassis, all welds shall meet the American Welding Society requirements. Any aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum. Furthermore, all welds shall be presentable and clean in appearance while adhering to the standards addressed. All welds shall be presentable and meet the inspection satisfaction of the customer. Any welds not presentable shall be rejected by the customer. There shall be no exceptions.</p>			
32.0	<b><u>MODEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
32.1	<p>The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance with state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer, or their OEM needed to follow those regulations.</p>			
33.0	<b><u>CAB AND CHASSIS LABELING LANGUAGE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
33.1	<p>Where applicable, the cab and chassis shall include the following: caution, warning, and safety notice labels with text to be written in English. Where applicable, the labels shall include decorative chrome bezels. Designs shall include bezels that fit individual labels or packaged configurations of labels in certain common locations.</p> <p>The following labels shall include a decorative chrome bezel (where applicable):</p>			

33.2	<ul style="list-style-type: none"> <li>• Shoreline</li> <li>• Aerial Stowed</li> <li>• Aerial Breakers 2</li> <li>• Air Conditioner</li> <li>• Cab Tilt Plate</li> <li>• Air Compressor Breaker</li> <li>• Battery Conditioner Breaker</li> <li>• Helmet Caution</li> <li>• Horn Tag</li> <li>• Q2B Tag</li> <li>• Load Center Plate</li> <li>• Not a Step Label</li> <li>• Occupancy Tag</li> <li>• Do Not Move</li> <li>• Occupants Must Be Seated</li> <li>• Do Not Stand</li> <li>• Danger Do Not Weld</li> <li>• Danger--Untrained Operator</li> <li>• DEF Fill Access</li> <li>• Battery Direct</li> <li>• Kneeling</li> <li>• IFS Air Fault</li> <li>• Engine Brake</li> <li>• Retarder</li> <li>• LR 100 Amp Node</li> <li>• 300 Amp EPU</li> <li>• 100 Amp Front O/R Node</li> <li>• 100 Amp T/T Node</li> <li>• 100 Amp RR O/R Node</li> <li>• 10 Amp EPU</li> <li>• Master Power</li> <li>• 12 Volt Power</li> <li>• Aerial Hours</li> <li>• Windshield Washer Fluid</li> <li>• Pump In Drive</li> </ul>			
34.0	<b><u>APPARATUS TYPE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
34.1	The apparatus shall be a mid-mount aerial vehicle designed for emergency service use. The apparatus shall be equipped with a mid-mount aerial ladder, elevating platform, or water tower.			
35.0	<b><u>VEHICLE TYPE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
35.1	The chassis shall be manufactured for use as a straight truck-type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.			

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36.0	<b><u>OVERALL DIMENSIONS</u></b>	YES	NO	EXCEPTIONS / NOTES
36.1	<p>The overall height of the apparatus shall be approximately 136” (11'4”) from the ground. This measurement shall be taken with the tires properly inflated and with the apparatus in the unloaded condition to ensure a maximum overall height. The measurement shall be taken at the highest point of the apparatus.</p> <p>Overall Length shall be 580 (48'4")</p> <p>The overall length of the apparatus shall be 580” (48'4”).</p> <p>The wheelbase of the apparatus shall be 250".</p> <p>The chassis rear overhang shall be 68.50 inches.</p>			
37.0	<b><u>VEHICLE ANGLE OF APPROACH</u></b>	YES	NO	EXCEPTIONS / NOTES
37.1	The angle of approach of the apparatus shall be a minimum of 8.00 degrees.			
38.0	<b><u>ANGLE OF DEPARTURE</u></b>	YES	NO	EXCEPTIONS / NOTES
38.1	The angle of departure of the apparatus shall be a minimum of 8.00 degrees.			
39.0	<b><u>AXLE CONFIGURATION</u></b>	YES	NO	EXCEPTIONS / NOTES
39.1	The chassis shall feature a 6 x 4 axle configuration consisting of a tandem rear drive axle set with a single front steer axle.			
40.0	<b><u>GROSS AXLE WEIGHT RATING FRONT</u></b>	YES	NO	EXCEPTIONS / NOTES
40.1	This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.			
41.0	<b><u>PUMP PROVISION</u></b>	YES	NO	EXCEPTIONS / NOTES
41.1	The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for the automatic setting of the parking brake when the vehicle is shifted into pump mode while the transmission is in neutral, and the transmission output speed translates to less than 1 mph. When the conditions are met the driver-side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.			
42.0	<b><u>WATER &amp; FOAM TANK CAPACITY</u></b>	YES	NO	EXCEPTIONS / NOTES
42.1	The chassis shall include a carrying capacity of up to 300 gallons. The water and/or foam tank(s) shall be supplied and installed by the apparatus manufacturer.			

43.0	CAB STYLE	YES	NO	EXCEPTIONS / NOTES
43.1	<p>The cab shall be custom built, fully enclosed, and have a flat roof over the driver, officer, and crew areas. It shall be designed and built specifically for use as an emergency response vehicle by a company specializing in a cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle.</p> <p>The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall, and side wall panels shall be assembled using welds and proven industrial adhesives designed specifically for metal fabrication for construction. The cab shall be constructed using methods and materials with proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed.</p> <p>Any aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.</p> <p>All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention. The cab shall be constructed of corrosion-resistant metal plates. The cab shall incorporate tongue and groove-fitted extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the "A" pillar, adding strength and rigidity to the cab as well as additional roll-over protection.</p> <p>The cab side walls and roof skin shall be a minimum of 0.13 inches thick; the rear wall skin shall be a minimum of 0.09 inches thick; the front cab structure shall be a minimum of 0.19 inches thick. The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab. The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear.</p> <p>The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.</p>			

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44.0	<b><u>OCCUPANT PROTECTION</u></b>	YES	NO	EXCEPTIONS / NOTES
44.1	The vehicle shall include an occupant protection system which shall secure belted occupants and increase the survivable space within the cab. Secondary means of occupant protection shall be provided by the vendor and approved by the customer at bid submission.			
45.0	<b><u>CAB FRONT FASCIA</u></b>	YES	NO	EXCEPTIONS / NOTES
45.1	<p>The front cab fascia shall be constructed of a minimum of 0.13 of an inch thick plate which shall be an integral part of the cab.</p> <p>The cab fascia will encompass the entire front of the cab structure from the bottom of the windshield to the bottom of the cab.</p> <p>The front cab fascia shall include two (2) modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn Signal lights or up to four (4) warning lights. A chrome-plated molded bezel shall be provided on each side around each set of four lamps.</p>			
46.0	<b><u>CAB UNDERCOAT</u></b>	YES	NO	EXCEPTIONS / NOTES
46.1	There shall be a rubberized undercoating applied to the underside of the cab.			
47.0	<b><u>CAB SIDE DRIP RAIL</u></b>	YES	NO	EXCEPTIONS / NOTES
47.1	There shall be a drip rail along the top radius of each cab side.			
48.0	<b><u>CAB PAINT EXTERIOR</u></b>	YES	NO	EXCEPTIONS / NOTES
48.1	The cab shall be painted before the installation of glass accessories and all other cab trim. The cab shall be painted the specific color designated with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The paint shall have a minimum thickness of 2.00 mils, followed by a clear topcoat not to exceed 2.00 mils.			
49.0	<b><u>CAB PAINT MANUFACTURER</u></b>	YES	NO	EXCEPTIONS / NOTES
49.1	The cab shall be painted with Sikkens paint.			
50.0	<b><u>CAB PAINT PRIMARY/LOWER COLOR</u></b>	YES	NO	EXCEPTIONS / NOTES
50.1	The primary/lower paint color shall be Sikkens FLNA 31841 Red.			
51.0	<b><u>CAB PAINT SECONDARY/UPPER COLOR</u></b>	YES	NO	EXCEPTIONS / NOTES
51.1	The secondary/upper paint color shall be Sikkens FLNA 41876 White.			
52.0	<b><u>CAB PAINT EXTERIOR BREAKLINE</u></b>	YES	NO	EXCEPTIONS / NOTES
52.1	The upper and lower paint shall meet at a break line on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The break line shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.			

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<b>53.0</b>	<b><u>CAB PAINT PINSTRIPE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>53.1</b>	Where the upper and lower paint colors meet a temporary 0.50-inch-wide black pinstripe shall be applied over this break line to offer a more finished look before the final pinstripe is installed by the OEM.			
<b>54.0</b>	<b><u>CAB PAINT WARRANTY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>54.1</b>	The cab and chassis shall be covered by the 10 year/ 100,000 mile manufacturer's paint warranty.			
<b>55.0</b>	<b><u>CAB INTERIOR/COMPONENT COATING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>55.1</b>	All visible cab structure surfaces and painted interior components shall be manually selected at each interior component's subcategory.			
<b>56.0</b>	<b><u>CAB PAINT INTERIOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>56.1</b>	The visible interior cab structure surfaces shall feature a medium gray spray-on bed liner coating which shall mold to each surface of the cab interior.			
<b>57.0</b>	<b><u>CAB ENTRY DOORS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>57.1</b>	<p>The cab shall include four (4) entry doors, two (2) front doors, and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA.</p> <p>The doors shall include Weather Stripping Material.</p> <p>Each door hinge shall be constructed of stainless steel and offer a minimum of 90-degree door open angle.</p>			
<b>58.0</b>	<b><u>CAB ENTRY DOOR TYPE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>58.1</b>	All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door. Entry doors shall include Pollak mechanical plunger style Switches for electrical component activation.			
<b>59.0</b>	<b><u>CAB INSULATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>59.1</b>	The cab ceiling and walls shall include insulation material. The insulation will be rated to decrease exterior noise and increase desired interior temperature control.			
<b>60.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>60.1</b>	<b>REMOVED</b>			
<b>60.2</b>	<b>REMOVED</b>			
<b>61.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>61.1</b>	<b>REMOVED</b>			
<b>62.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>62.1</b>	<b>REMOVED</b>			
<b>63.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>63.1</b>	<b>REMOVED</b>			
<b>64.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>64.1</b>	<b>REMOVED</b>			



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<b>65.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>65.1</b>	<b>REMOVED</b>			
<b>66.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>66.1</b>	<b>REMOVED</b>			
<b>67.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>67.1</b>	<b>REMOVED</b>			
<b>68.0</b>	<b>REMOVED</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>68.1</b>	<b>REMOVED</b>			
<b>69.0</b>	<b><u>CAB STRUCTURAL WARRANTY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>69.1</b>	Shall receive a 10 year / 100,000 mile Cab Structural warranty			
<b>70.0</b>	<b><u>CAB TEST INFORMATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>70.1</b>	The cab shall have successfully completed the preload side impact, static roof load application, and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi-Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles concerning the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.			
<b>71.0</b>	<b><u>ELECTRICAL SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>71.1</b>	The chassis shall include a single starting electrical system which shall include a 12-volt direct current multiplexing system. The wiring shall be appropriate gauge cross link with insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by a flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.			
<b>72.0</b>	<b><u>OEM WIRING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>72.1</b>	The wiring system shall include a prewire for ECM park brake input and engine ground return circuits located behind the Switch panel. The circuits shall include an extra 2.00 feet of wire and shall be labeled "ECM Park Brake Input".			
<b>73.0</b>	<b><u>MULTIPLEX DISPLAY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>73.1</b>	The multiplex electrical system shall include a display which shall be located on the left side of the dash in the Switch panel. The display shall feature a full-color LCD screen that includes a message bar displaying the time of day and important messages requiring acknowledgment by the user which shall all be displayed on the top of the screen in the order they are received. There shall be virtual controls on each side of the display for the onboard diagnostics. The display screen shall be video ready for backup cameras. The display shall be fully programmable.			

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74.0	<b><u>LOAD MANAGEMENT SYSTEM</u></b>	YES	NO	EXCEPTIONS / NOTES
74.1	The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.			
75.0	<b><u>DATA RECORDING SYSTEM</u></b>	YES	NO	EXCEPTIONS / NOTES
75.1	<p>The chassis shall have a Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the multiplex electrical system. The following information shall be recorded:</p> <ul style="list-style-type: none"> <li>• Vehicle Speed</li> <li>• Acceleration</li> <li>• Deceleration</li> <li>• Engine Speed</li> <li>• Engine Throttle Position</li> <li>• ABS Event</li> <li>• Seat Occupied Status</li> <li>• Seat Belt Status</li> <li>• Master Optical Warning Device Switch Position</li> <li>• Time/Date</li> </ul> <p>Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel-mounted female type B USB connection point, remotely mounted in the left side foot well.</p>			
76.0	<b><u>ACCESSORY POWER</u></b>	YES	NO	EXCEPTIONS / NOTES
76.1	The electrical distribution panel shall include two (2) power studs. The studs shall be minimum size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40-amp battery direct load. One (1) power stud shall be capable of carrying up to a 15-amp ignition switch load. The two (2) power studs shall share one (1) minimum #10 ground stud. A 225-amp master switch and fuse power and ground stud shall be provided and installed on the chassis near the left-hand battery box for OEM body connections.			
77.0	<b><u>AUXILIARY ACCESSORY POWER</u></b>	YES	NO	EXCEPTIONS / NOTES
77.1	An auxiliary six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed by the apparatus builder. The fuse panel shall be protected by a 40-amp fuse and be wired for a battery direct load.			
78.0	<b><u>ADDITIONAL ACCESSORY POWER</u></b>	YES	NO	EXCEPTIONS / NOTES
78.1	An auxiliary six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed by the apparatus builder. The fuse panel shall be protected by a 40-amp fuse and be wired for a battery direct load.			

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79.0	<b><u>EXTRA ACCESSORY POWER</u></b>	YES	NO	EXCEPTIONS / NOTES
79.1	An auxiliary six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed by the apparatus builder. The fuse panel shall be protected by a 40-amp fuse and be wired for a battery direct load. The panel shall be wired to an on/off rocker switch labeled "MODEM RESET" which will allow the modem to be reset.			
80.0	<b><u>ANCILLARY ACCESSORY POWER</u></b>	YES	NO	EXCEPTIONS / NOTES
80.1	An additional six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed by the apparatus builder. The fuse panel shall be protected by a 40-amp fuse and shall be wired for an ignition switched load.			
81.0	<b><u>EXTERIOR ELECTRICAL TERMINAL COATING</u></b>	YES	NO	EXCEPTIONS / NOTES
81.1	All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating			
82.0	<b><u>ENGINE</u></b>	YES	NO	EXCEPTIONS / NOTES
82.1	<p>The chassis engine shall be a Cummins X15 engine. The X15 engine shall be an in-line six (6) cylinder, four-cycle diesel-powered engine. The engine shall offer a rating of 605 horsepower at 1800 RPM and shall be governed at 2100 RPM. The torque rating shall feature 1850-foot pounds of torque at 1000 RPM with 912 cubic inches (14.9 liters) of displacement.</p> <p>The X15 engine shall feature a VGT™ Turbocharger, a high-pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2023 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.</p> <p>The engine shall include an engine-mounted combination full-flow/by-pass oil filter with a replaceable spin-on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent 15W40 CK-4 low ash engine oil which shall be utilized for proper engine lubrication. A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle, and a PSG system.</p>			
83.0	<b><u>CAB ENGINE TUNNEL</u></b>	YES	NO	EXCEPTIONS / NOTES
83.1	The cab interior shall include an integrated engine tunnel constructed of a minimum of Marine Grade 0.19 of an inch thick metal plate. The engine tunnel material shall be the same as the cab construction material.			

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84.0	<b><u>ALUMINUM MOUNTING PLATE ON ENGINE TUNNEL</u></b>	YES	NO	EXCEPTIONS / NOTES
84.1	A 3/16" aluminum mounting plate shall be on the top of the chassis engine tunnel for the mounting of equipment. The plate shall be mounted on 3/4" spacers and will be on the flat portion of the engine tunnel only. The mounting plate shall have an abraded finish.			
85.0	<b><u>ENGINE TUNNEL TRIM</u></b>	YES	NO	EXCEPTIONS / NOTES
85.1	The cab engine tunnel shall be covered with a multi-layer mat with a non-slip vinyl surface finish. The engine tunnel mat shall be trimmed with aluminum trim.			
86.0	<b><u>DIESEL PARTICULATE FILTER CONTROLS</u></b>	YES	NO	EXCEPTIONS / NOTES
86.1	There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.			
87.0	<b><u>ENGINE PROGRAMMING HIGH IDLE SPEED</u></b>	YES	NO	EXCEPTIONS / NOTES
87.1	The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.			
88.0	<b><u>ENGINE HIGH IDLE CONTROL</u></b>	YES	NO	EXCEPTIONS / NOTES
88.1	The vehicle shall be equipped with a virtual display button and automatic high-idle speed control. It shall be pre-set so that when activated, it will operate the engine at the appropriate RPM to increase alternator output.			
89.0	<b><u>ENGINE PROGRAMMING ROAD SPEED GOVERNOR</u></b>	YES	NO	EXCEPTIONS / NOTES
89.1	The engine shall include programming which will govern the top speed of the vehicle.			
90.0	<b><u>AUXILIARY ENGINE BRAKE</u></b>	YES	NO	EXCEPTIONS / NOTES
90.1	<p>A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.</p> <p>The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow.</p>			
91.0	<b><u>AUXILIARY ENGINE BRAKE CONTROL</u></b>	YES	NO	EXCEPTIONS / NOTES
91.1	<p>An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all the following conditions are simultaneously detected:</p> <ul style="list-style-type: none"> <li>• A valid gear ratio is detected.</li> <li>• The driver has requested or enabled engine compression brake operation.</li> <li>• The throttle is at a minimum engine speed position.</li> <li>• The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.</li> </ul>			
91.2	The system shall be activated by an on/off Switch and a low/high selector switch.			

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92.0	<b><u>ELECTRONIC ENGINE OIL LEVEL INDICATOR</u></b>	YES	NO	EXCEPTIONS / NOTES
92.1	The engine oil shall be monitored electronically and shall send a Signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switch without the engine running.			
93.0	<b><u>FLUID FILLS</u></b>	YES	NO	EXCEPTIONS / NOTES
93.1	The front of the chassis shall accommodate fluid fill for the engine oil through the grille. This area shall also accommodate a check for the engine oil. The transmission, power steering, and coolant fluid fills and checks shall be under the cab. The windshield washer fill shall be easily accessible.			
94.0	<b><u>ENGINE DRAIN PLUG</u></b>	YES	NO	EXCEPTIONS / NOTES
94.1	The engine shall include an original equipment manufacturer-installed oil drain plug.			
95.0	<b><u>ENGINE WARRANTY</u></b>	YES	NO	EXCEPTIONS / NOTES
95.1	The Cummins engine shall have a standard 5 year and 100,000 mile manufacturer's warranty			
96.0	<b><u>REMOTE THROTTLE HARNESS</u></b>	YES	NO	EXCEPTIONS / NOTES
96.1	An apparatus interface wiring harness for the engine and transmission pump interlocks shall be supplied with the chassis. The harness shall include a connector for connection to a chassis pump panel harness and shall terminate in the left frame rail behind the cab. The harness shall include circuits deemed for a pump panel and shall contain circuits for a hand throttle, and a multiplexed gauge. Separate circuits shall also be included for a pump control Switch, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start Signal, park brake ground, Ignition Signal, master power, clean power, customer Ignition, air horn solenoid Switch, high idle Switch, and high idle indicator light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the parking brake to be set.			
97.0	<b><u>ENGINE PROGRAMMING REMOTE THROTTLE</u></b>	YES	NO	EXCEPTIONS / NOTES
97.1	The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a pump controller or when the discreet wire remote throttle controls are not required.			
98.0	<b><u>ENGINE PROGRAMMING IDLE SPEED</u></b>	YES	NO	EXCEPTIONS / NOTES
98.1	The engine's low idle speed will be programmed at 700 rpm.			

<b>99.0</b>	<b><u>ENGINE AIR INTAKE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>99.1</b>	<p>The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy-duty steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.</p> <p>The engine air intake system shall also include an air cleaner mounted above the radiator or as high as possible to ensure cooler cleaner air is entering the intake. This air cleaner shall utilize a replaceable dry type of filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.</p> <p>The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.</p>			
<b>100.0</b>	<b><u>ENGINE FAN DRIVE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>100.1</b>	<p>The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with the variable speed fan clutch only engaging at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall contain a fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a clutch controller to receive a signal from the engine control module to activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.</p>			
<b>101.0</b>	<b><u>ENGINE COOLING SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>101.1</b>	<p>There shall be a heavy-duty cooling system designed to meet the demands of the emergency response industry. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements.</p> <p>The cooling system shall be comprised of a radiator that provides the maximum cooling capacity for the specified engine as well as serviceability.</p> <p>The radiator shall be equipped with a drain cock to drain the coolant for serviceability.</p> <p>The radiator and charge air cooler shall be removable through the bottom of the chassis.</p>			

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<b>102.0</b>	<b><u>ENGINE COOLING SYSTEM PROTECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>102.1</b>	The engine cooling system shall include a recirculation shield designed to act as a light-duty skid plate below the radiator. The skid plate shall be painted to match the frame components and must include service provisions to allow for coolant reclamation.			
<b>103.0</b>	<b><u>ENGINE COOLANT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>103.1</b>	The cooling package shall include Extended Life Coolant (ELC).			
<b>104.0</b>	<b><u>ENGINE COOLANT FILTER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>104.1</b>	An engine coolant filter with a shut-off valve for the inlet and outlet shall be installed on the chassis. The location of the filter shall allow for easy maintenance.			
<b>105.0</b>	<b><u>ELECTRONIC COOLANT LEVEL INDICATOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>105.1</b>	The instrument panel shall feature a low engine coolant indicator light which shall be in the center of the instrument panel with an audible alarm.			
<b>106.0</b>	<b><u>COOLANT HOSES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>106.1</b>	The cooling system hoses shall be silicone heater hoses and formed silicone coolant hoses with formed aluminized steel tubing. Bulkhead fittings shall be used where the heater hoses pass through the cab. All heater hoses, silicone coolant hoses, and tubing shall be secured with stainless steel constant torque band clamps.			
<b>107.0</b>	<b><u>ENGINE PUMP HEAT EXCHANGER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>107.1</b>	A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from contacting the engine coolant.			
<b>108.0</b>	<b><u>ENGINE COOLANT OVERFLOW BOTTLE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>108.1</b>	A remote engine coolant overflow expansion bottle shall be provided in the case of overfilling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.			
<b>109.0</b>	<b><u>ENGINE EXHAUST SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>109.1</b>	The exhaust system shall include an after-treatment device and a downpipe from the turbo. The single module shall include four temperature sensors, a diesel particulate filter (DPF), a urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the DPF and SCR.			



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<b>110.0</b>	<b><u>DIESEL EXHAUST FLUID TANK</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>110.1</b>	The exhaust system shall include a molded polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of ten (10) usable gallons and shall be mounted on the chassis frame. The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step. The tank fill tube shall be easily accessible and provide an easy pour design.			
<b>111.0</b>	<b><u>ENGINE EXHAUST ACCESSORIES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>111.1</b>	The exhaust system shall be able to accept a Plymovent exhaust extraction system collar.			
<b>112.0</b>	<b><u>EXHAUST HEAT DEFLECTOR SHIELD</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>112.1</b>	If applicable a heat deflector shield shall be installed over the exhaust to aid in dissipating the heat to prevent exhaust heat from adversely affecting contents stored in the body.			
<b>113.0</b>	<b><u>ENGINE EXHAUST WRAP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>113.1</b>	The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover to retain the necessary heat for DPF regeneration.			
<b>114.0</b>	<b><u>TRANSMISSION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>114.1</b>	The drive train shall include an Allison model EVS 4000 torque converting, automatic transmission which shall include electronic controls, and an output retarder. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.  The transmission shall include two (2) internal oil filters which shall offer Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.  The transmission gear ratios shall be 1st 3.51:1 2nd 1.91:1 3rd 1.43:1 4th 1.00:1 5th 0.74:1 6th 0.64:1 (if applicable) Rev 4.80:1			
<b>115.0</b>	<b><u>TRANSMISSION MODE PROGRAMMING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>115.1</b>	The transmission, upon start-up, will select a six (6) speed operation without the need to press the mode button. The transmission programming shall only include S1 performance shift schedules. The mode button shall not include a secondary economy shift schedule.			

116.0	TRANSMISSION FEATURE PROGRAMMING	YES	NO	EXCEPTIONS / NOTES																								
116.1	<p>The Allison Gen V/VI-E transmission EVS group package number 127 shall contain the 198 vocational packages in consideration of the duty of this apparatus as having a pump. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the parking brake is applied, regardless of the drive range requested on the shift selector. This requires re-selecting the drive range to shift out of neutral for the override.</p> <p>This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.</p> <p>A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V/VI-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.</p>																											
	<table><tr><td><u>Function</u></td><td><u>Description</u></td><td><u>Wire</u></td></tr><tr><td><u>ID Inputs</u></td><td></td><td><u>Assignment</u></td></tr><tr><td>C</td><td>PTO Request</td><td>142</td></tr><tr><td>J</td><td>Fire Truck Pump Mode (4th Lockup)</td><td>122 / 123</td></tr><tr><td><u>Outputs</u></td><td></td><td></td></tr><tr><td>C</td><td>Range Indicator</td><td>145 (4th)</td></tr><tr><td>G</td><td>PTO Enable Output</td><td>130</td></tr><tr><td></td><td>Signal Return</td><td>103</td></tr></table>	<u>Function</u>	<u>Description</u>	<u>Wire</u>	<u>ID Inputs</u>		<u>Assignment</u>	C	PTO Request	142	J	Fire Truck Pump Mode (4th Lockup)	122 / 123	<u>Outputs</u>			C	Range Indicator	145 (4th)	G	PTO Enable Output	130		Signal Return	103			
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117.0	ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR	YES	NO	EXCEPTIONS / NOTES																								
117.1	<p>The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.</p>																											
118.0	TRANSMISSION SHIFT SELECTOR	YES	NO	EXCEPTIONS / NOTES																								
118.1	<p>An Allison pressure-sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide a mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.</p>																											

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<b>119.0</b>	<b><u>TRANSMISSION RETARDER CONTROL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>119.1</b>	The Allison transmission retarder shall be engaged with the first one-third at 0% throttle and the remaining two-thirds shall be modulated by brake pedal actuation. The system shall include a retarder on/off rocker switch mounted on the dash.			
<b>120.0</b>	<b><u>TRANSMISSION RETARDER CAPACITY LEVEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>120.1</b>	The transmission retarder shall be programmed so the maximum retardation shall be at the high-capacity level.			
<b>121.0</b>	<b><u>TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>121.1</b>	When the auxiliary brake is engaged, the transmission shall automatically shift to third gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.			
<b>122.0</b>	<b><u>TRANSMISSION COOLING SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>122.1</b>	The transmission shall include a water-to-oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements.			
<b>123.0</b>	<b><u>TRANSMISSION DRAIN PLUG</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>123.1</b>	The transmission shall include an original equipment manufacturer-installed magnetic transmission fluid drain plug.			
<b>124.0</b>	<b><u>TRANSMISSION WARRANTY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>124.1</b>	The Allison EVS 4000 series transmission shall carry the standard 5-year manufacturer's warranty.			
<b>125.0</b>	<b><u>LEFT-HAND PTO</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>125.1</b>	A PTO shall be installed on the transmission by the OEM.			
<b>126.0</b>	<b><u>LEFT-HAND PTO MODEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>126.1</b>	A ten (10) bolt Chelsea model 280-GGFJP-B5XD heavy-duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides an intermittent and continuous torque rating of 360 lb. ft.			
<b>127.0</b>	<b><u>PTO LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>127.1</b>	The transmission shall have two (2) power take-off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 1:00 o'clock position.			
<b>128.0</b>	<b><u>LEFT-HAND PTO CONTROL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>128.1</b>	Switches for the power take-off shall be wired to the multiplex system node to be used by the OEM. There shall be an on/off rocker switch labeled "Aerial Master" wired to a multiplex display  There shall be an on/off rocker switch labeled "Aerial PTO" activated by the "Aerial Master" rocker switch with an input to the Multiplex node when the Switch is on.  Both switches shall be located on the dash.			

<b>129.0</b>	<b><u>PTO PROGRAMMING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>129.1</b>	The power take-off shall be programmed for operator control such that it shall only engage at or below 900 engine RPM and a transmission output speed of 250 RPM. The PTO shall operate in a range of up to 4000 engine RPM or a transmission output speed of 5000 RPM. The PTO programming shall provide for automatic disengagement set at a specified engine speed of 4000 RPM, or transmission output speed of 5000 RPM. The range shall be programmed to protect equipment driven from the power take-off.			
<b>130.0</b>	<b><u>DRIVELINE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>130.1</b>	All drivelines shall be heavy-duty metal tubes and equipped with MSI 1810 series universal joints for the main drivelines, and 1710 series for the inter-axle shaft. The shafts shall be dynamically balanced before installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated. The drivelines shall include Meritor brand u-joints with thrust washers.			
<b>131.0</b>	<b><u>MIDSHIP PUMP / GEARBOX</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>131.1</b>	A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.			
<b>132.0</b>	<b><u>MIDSHIP PUMP / GEARBOX MODEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>132.1</b>	The midship pump/gearbox provisions shall be for a Waterous CSUC20 pump rearward.			
<b>133.0</b>	<b><u>MIDSHIP PUMP GEARBOX DROP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>133.1</b>	The Waterous pump gearbox shall have a "C" (medium length) drop length.			
<b>134.0</b>	<b><u>MIDSHIP PUMP RATIO</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>134.1</b>	The ratio for the midship pump shall be 2.27:1.			
<b>135.0</b>	<b><u>MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>135.1</b>	The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 81.00 inches.			
<b>136.0</b>	<b><u>PUMP SHIFT CONTROLS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>136.1</b>	One (1) pump shift control panel shall be mounted on the lower center section of the center dash panel. The following shall be provided on the panel: a three (3) position locking toggle Switch; an engraved PUMP ENGAGED identification light, and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border outline.			

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136.2	<p>One (1) label indicating pump instructions and the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA 16.10.1.3. The road mode shall be selected when the Switch is in the up position and the pump mode shall be selected when the Switch is in the down position.</p> <p>The center Switch position shall exhaust air from both pump and roadsides of the pump gearbox shift cylinder.</p>			
137.0	<b><u>PUMP SHIFT CONTROL PLUMBING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
137.1	Air connections shall be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame-mounted bracket. The frame-mounted bracket shall include labeling identifying the pump and road connection points with threaded 0.25-inch NPT fittings on the solenoid for attaching the customer-installed pump. The air supply shall be pressure-protected from the service brake system.			
138.0	<b><u>FUEL FILTER/WATER SEPARATOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
138.1	<p>The fuel system shall have a Racor GreenMAX 6600R fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve and a see-through cover to allow visual inspection of fuel and filter conditions. The Racor 6600R shall meet engine requirements for particulate size, collection capacity, removal efficiency, and water removal efficiency. The filter shall be capable of handling a maximum flow rate of 150 gallons per hour.</p> <p>A secondary fuel filter shall be included as approved by the engine manufacturer.</p> <p>An instrument panel lamp and audible alarm which indicates when water is present in the fuel-water separator shall also be included.</p>			
139.0	<b><u>FUEL LINES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
139.1	The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced braided stainless steel tubing rated for diesel fuel.			
140.0	<b><u>ELECTRIC FUEL PRIMER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
140.1	Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.			
141.0	<b><u>FUEL COOLER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
141.1	An aluminum cross flow air to the fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located behind the rear axle.			

<b>142.0</b>	<b><u>FUEL TANK</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>142.1</b>	<p>The fuel tank shall have a capacity of approximately sixty-eight (68) gallons.</p> <p>The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a rollover ball check vent for temperature-related fuel expansion and draw.</p> <p>The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00-inch NPT fill ports for right- or left-hand fill. A 0.50-inch NPT drain plug shall be centered at the bottom of the tank.</p> <p>The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.</p>			
<b>143.0</b>	<b><u>FUEL TANK MATERIAL AND FINISH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>143.1</b>	<p>The fuel tank shall be constructed of 12-gauge aluminized steel. The exterior of the tank shall be powder-coated black and then painted to match the frame components.</p> <p>All powder coatings, primers, and paint shall be compatible with all metals, pretreatments, and primers used. The crosshatch adhesion test per ASTM D3359 Method B results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 results to be 5B minimum.</p>			
<b>144.0</b>	<b><u>FUEL TANK STRAP MATERIAL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>144.1</b>	The fuel tank straps shall be constructed of steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.			
<b>145.0</b>	<b><u>FUEL TANK MISCELLANEOUS OPTIONS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>145.1</b>	The fuel tank shall be temporarily mounted, to be permanently relocated by the OEM. The tank and mounting straps shall be included with the chassis along with components for permanent standard installation.			
<b>146.0</b>	<b><u>FUEL FILLS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>146.1</b>	There shall be two (2) fuel fill pockets located in the rear wheel well area, one (1) on each of the driver's and officer's sides.			

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147.0	<b><u>FUEL TANK SERVICEABILITY PROVISIONS</u></b>	YES	NO	EXCEPTIONS / NOTES
147.1	The chassis fuel lines and sender wiring shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 12.00 feet of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.			
148.0	<b><u>FUEL TANK DRAIN PLUG</u></b>	YES	NO	EXCEPTIONS / NOTES
148.1	A 0.5-inch magnetic drain plug shall be centered in the bottom of the fuel tank.			
149.0	<b><u>FRONT AXLE</u></b>	YES	NO	EXCEPTIONS / NOTES
149.1	The front axle shall be compatible with the Hendrickson Steertek NXT suspension. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 23,000 pounds. This rating shall require special approvals from the wheel manufacturers.			
150.0	<b><u>FRONT AXLE WARRANTY</u></b>	YES	NO	EXCEPTIONS / NOTES
150.1	The front axle shall be warranted by Hendrickson for 5 years with unlimited miles under the general service application.			
151.0	<b><u>FRONT-WHEEL BEARING LUBRICATION</u></b>	YES	NO	EXCEPTIONS / NOTES
151.1	The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.			
152.0	<b><u>FRONT SHOCK ABSORBERS</u></b>	YES	NO	EXCEPTIONS / NOTES
152.1	Two (2) Bilstein inert, nitrogen gas-filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a mono-tubular. The Bilstein front shocks shall include a digressive working piston assembly			
153.0	<b><u>FRONT SUSPENSION</u></b>	YES	NO	EXCEPTIONS / NOTES
153.1	The front suspension shall include a leaf spring pack. The spring capacity shall be rated at approximately 23,000 pounds.			
154.0	<b><u>STEERING COLUMN/ WHEEL</u></b>	YES	NO	EXCEPTIONS / NOTES
154.1	The cab shall include a steering column which shall include both tilting and telescopic adjustments. The steering wheel shall be covered with black padding.  The steering column shall contain a horn button, a self-canceling turn signal, a four-way hazard switch, and a headlamp dimmer switch.			
155.0	<b><u>ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR</u></b>	YES	NO	EXCEPTIONS / NOTES
155.1	The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when the fluid level falls below normal.			



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156.0	<b><u>POWER STEERING PUMP</u></b>	YES	NO	EXCEPTIONS / NOTES
156.1	The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type. The power steering system shall include an oil-to-air passive cooler.			
157.0	<b><u>FRONT AXLE CRAMP ANGLE</u></b>	YES	NO	EXCEPTIONS / NOTES
157.1	The chassis shall have a front axle cramp angle of a minimum of 50 degrees			
158.0	<b><u>POWER STEERING GEAR</u></b>	YES	NO	EXCEPTIONS / NOTES
158.1	The power steering gear shall be a TRW model TAS 85 with an assist cylinder.			
159.0	<b><u>CHASSIS ALIGNMENT</u></b>	YES	NO	EXCEPTIONS / NOTES
159.1	The chassis frame rails shall be measured to ensure the length is correct and cross-checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.			
160.0	<b><u>REAR AXLE</u></b>	YES	NO	EXCEPTIONS / NOTES
160.1	The rear axle shall be a Meritor model RT-58-185 tandem drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 63,000 pounds.			
161.0	<b><u>REAR AXLE DIFFERENTIAL CONTROL</u></b>	YES	NO	EXCEPTIONS / NOTES
161.1	<p>The tandem axle chassis shall include an inter-axle differential lock, which will allow both axles to be engaged as drive axles. The differential lock shall be controlled by a locking rocker switch on the switch panel. The light on the switch shall illuminate with the positive engagement of the inter-axle differential control.</p> <p>A driver-controlled differential lock shall be installed on one of the tandem rear axles. This feature shall allow the main differential to be locked and unlocked when encountering poor road or highway conditions, where maximum traction is needed, for use at speeds no greater than 25 MPH. The driver-controlled differential lock shall be controlled by a separate locking rocker switch on the switch panel. The light on the switch shall illuminate with the positive engagement of the differential control.</p>			
162.0	<b><u>VEHICLE TOP SPEED</u></b>	YES	NO	EXCEPTIONS / NOTES
162.1	The top speed of the vehicle shall be approximately 65 MPH +/-2 MPH at governed engine RPM.			
163.0	<b><u>REAR SUSPENSION</u></b>	YES	NO	EXCEPTIONS / NOTES
163.1	The tandem axle shall feature an air suspension system. The rear suspension capacity shall be rated at 54,000 to 62,000 pounds.			
164.0	<b><u>REAR SHOCK ABSORBERS</u></b>	YES	NO	EXCEPTIONS / NOTES
164.1	Shock absorbers shall be installed on the rear axle suspension.			

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165.0	<b><u>TIRE INTERMITTENT SERVICE RATING</u></b>	YES	NO	EXCEPTIONS / NOTES
165.1	The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.			
166.0	<b><u>FRONT TIRE</u></b>	YES	NO	EXCEPTIONS / NOTES
166.1	The front tires shall be Michelin 425/65R-22.5 20PR "L" tubeless radial XZY3 mixed service tread.			
167.0	<b><u>REAR TIRE</u></b>	YES	NO	EXCEPTIONS / NOTES
167.1	The rear tires shall be Michelin 315/80R-22.5 20PR "L" tubeless radial XDN2 Grip all-weather tread.			
168.0	<b><u>REAR AXLE RATIO</u></b>	YES	NO	EXCEPTIONS / NOTES
168.1	The rear axle ratio shall be 5.38.			
169.0	<b><u>TIRE PRESSURE INDICATOR</u></b>	YES	NO	EXCEPTIONS / NOTES
169.1	There shall be electronic chrome LED valve caps which shall illuminate with a red LED when tire pressure drops 8psi.			
170.0	<b><u>WHEELS</u></b>	YES	NO	EXCEPTIONS / NOTES
170.1	<p>The front wheels shall be Alcoa hub piloted, 22.50-inch X 12.25-inch aluminum wheels. The outer face of the wheels shall feature Alcoa's Dura-Bright® finish</p> <p>The rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00-inch aluminum wheels with a polished outer surface and Alcoa Dura-Bright® wheel treatment The inner rear wheels shall be Alcoa hub piloted, 22.50-inch X 9.00-inch aluminum wheels with a polished inner and outer surface and Alcoa Dura-Bright® wheel treatment.</p>			
171.0	<b><u>WHEEL TRIM</u></b>	YES	NO	EXCEPTIONS / NOTES
171.1	<p>The front wheels shall include stainless steel lug nut covers and stainless-steel baby moons the baby moons shall have cutouts for oil seal viewing when applicable.</p> <p>The rear wheels shall include stainless steel lug nut covers and band-mounted spring clip stainless steel high hats. Each wheel trim component shall meet D.O.T. certification.</p>			
172.0	<b><u>AUXILIARY LUBRICATION SYSTEM</u></b>	YES	NO	EXCEPTIONS / NOTES
172.1	An Groeneveld centralized lubrication system shall be installed on the chassis. The system shall be capable of lubricating up to twenty-four (24) grease points on the chassis. A park brake interlock is incorporated into the ignition system to keep the system from operating while parked. A system diagnostic indicator light shall be provided on the dash. The main line system shall be monitored via a pressure switch. The system shall be mounted on the left-hand frame rail. A remote fill location shall be supplied to allow for ease of grease replenishment.			

<b>173.0</b>	<b><u>BRAKE SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>173.1</b>	A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a three (3) air tank, four (4) reservoir system. A floor-mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.			
<b>173.2</b>	The tandem rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.			
<b>173.3</b>	<p>An Anti-lock Braking System (ABS) shall be installed on the front and tandem rear axles to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel.</p> <p>A dash-mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.</p>			
<b>173.4</b>	<p>Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the tandem rear axle. The ATC system shall apply the ABS when the drive wheels lose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces. A virtual style switch shall be provided and properly labeled "mud/snow".</p> <p>When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition, the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.</p>			
<b>173.5</b>	The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It can detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle's motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle's lateral acceleration.			

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173.6	The Controller Area Network (CAN) bus provides information on the steering angle. Based on lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.			
174.0	<b><u>FRONT BRAKES</u></b>	YES	NO	EXCEPTIONS / NOTES
174.1	The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00-inch vented rotors.			
175.0	<b><u>REAR BRAKES</u></b>	YES	NO	EXCEPTIONS / NOTES
175.1	The rear brakes shall be Meritor 16.50-inch X 8.63-inch S-cam drum type. The brakes shall feature a cast iron shoe.			
176.0	<b><u>PARK BRAKE</u></b>	YES	NO	EXCEPTIONS / NOTES
176.1	Upon application of the push-pull valve in the cab, the rear brakes will engage via a mechanical spring.			
177.0	<b><u>PARK BRAKE CONTROL</u></b>	YES	NO	EXCEPTIONS / NOTES
177.1	A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.  The parking brake actuation valve shall be mounted in the center switch panel.			
178.0	<b><u>REAR BRAKE SLACK ADJUSTERS</u></b>	YES	NO	EXCEPTIONS / NOTES
178.1	Rear brake automatic slack adjusters shall be installed on the axle.			
179.0	<b><u>AIR DRYER</u></b>	YES	NO	EXCEPTIONS / NOTES
179.1	The brake system shall include a Wabco air dryer.			
180.0	<b><u>FRONT BRAKE CHAMBERS</u></b>	YES	NO	EXCEPTIONS / NOTES
180.1	The front brakes shall be provided with long stroke brake chambers.			
181.0	<b><u>REAR BRAKE CHAMBERS</u></b>	YES	NO	EXCEPTIONS / NOTES
181.1	The rear axle shall include brake chambers which shall convert the energy of compressed air into mechanical force and motion.			
182.0	<b><u>AIR COMPRESSOR</u></b>	YES	NO	EXCEPTIONS / NOTES
182.1	The air compressor provided shall be a Wabco single cylinder pass-through drive type compressor which shall be capable of producing approximately 18.7 CFM at 1200 engine RPMs.			
183.0	<b><u>AIR GOVERNOR</u></b>	YES	NO	EXCEPTIONS / NOTES
183.1	An air governor shall be provided to control the cut-in and cut-out pressures of the engine-mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket.			
184.0	<b><u>AUXILIARY AIR RESERVOIR</u></b>	YES	NO	EXCEPTIONS / NOTES
184.1	One (1) auxiliary air reservoir with a 1200 cubic inch capacity shall be installed on the chassis to act as an additional reserve supply to the air system for an air horn, air tool, or other non-service brake use. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.			

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185.0	<b><u>MOISTURE EJECTORS</u></b>	YES	NO	EXCEPTIONS / NOTES
185.1	Automatic moisture ejectors with a manual drain provision shall be installed on all reservoirs of the air supply system.			
186.0	<b><u>AIR SUPPLY LINES</u></b>	YES	NO	EXCEPTIONS / NOTES
186.1	The air system on the chassis shall be plumbed with color-coded reinforced nylon tubing airlines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange, and the auxiliary (outlet) will be blue. Compression-type fittings shall be used on the tubing. All drop hoses shall include fiber-reinforced neoprene-covered hoses.			
187.0	<b><u>VEHICLE TOWED AIR SUPPLY PACKAGE</u></b>	YES	NO	EXCEPTIONS / NOTES
187.1	The chassis shall include a vehicle towing air supply package. The mating surface of the glad hand connections shall be rotated horizontally. The glad hand connections shall be in the forward position and shall protrude beyond the face of the front bumper when connected.			
188.0	<b><u>REAR AIR TANK MOUNTING</u></b>	YES	NO	EXCEPTIONS / NOTES
188.1	If a combination of wheelbase, air tank quantity or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to the frame.			
189.0	<b><u>FRAME</u></b>	YES	NO	EXCEPTIONS / NOTES
189.1	<p>The frame shall consist of triple side rails and cross members forming a ladder-style frame. The side rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep X 0.38 inches thick, with an inner channel 9.44 inches high X 3.13 inches deep X 0.38 inches thick, and a second inner channel, 8.55 inches high X 2.75 inches deep X 0.25 inches thick which shall be provided extending from the rear of the cab to the forward rear suspension cross member. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. The triple rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,921,500-inch pounds and have a minimum section modulus of 35.65 cubic inches.</p> <p>A minimum of seven (7) fully gusseted 0.25-inch-thick cross members shall be installed. The inclusion of the body-mounting or bumper mounting shall not be considered as a cross member. The cross members shall be attached using high-strength fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25-inch-thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.</p> <p>All relief areas shall be cut in with a minimum 2.00-inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.</p>			

<b>190.0</b>	<b><u>FRAME PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>190.1</b>	<p>Main frame “C” channel or channels</p> <p>The frame parts which are not painted shall be powder coated before any attachment of components. Parts which shall be powder coated shall include but are not limited to:</p> <ul style="list-style-type: none"> <li>• Steering gear bracket</li> <li>• Front splayed rails and fish plates</li> <li>• Bumper extensions</li> <li>• Cross members</li> <li>• Cross member gussets</li> <li>• Fuel tank mounting brackets</li> <li>• Fuel tank straps</li> <li>• Air tanks</li> <li>• Air tank mounting brackets</li> <li>• Exhaust mounting brackets</li> <li>• Air cleaner skid plate</li> <li>• Radiator skid plate</li> <li>• Battery supports, battery trays, and battery covers</li> </ul> <p>Other non-painted undercarriage components which are received from the suppliers with coatings already applied shall include but are not limited to:</p> <ul style="list-style-type: none"> <li>• Suspension components</li> <li>• Front and rear axles</li> </ul> <p>All powder coatings, primers, and paint used on components shall be compatible with all metals, pretreatments, and primers used. The crosshatch adhesion test per ASTM D3359 shall not have a failure of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-cured pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.</p>			
<b>191.0</b>	<b><u>FRAME ASSEMBLY STRUCTURAL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>191.1</b>	Shall receive a Lifetime Frame Assembly Structural warranty.			
<b>192.0</b>	<b><u>FRONT BUMPER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>192.1</b>	The chassis shall be equipped with a heavy-duty front bumper constructed from a structural steel channel and have angled front corners.			
<b>193.0</b>	<b><u>FRONT BUMPER EXTENSION LENGTH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>193.1</b>	The front bumper shall be extended approximately 6.00 inches ahead of the cab.			
<b>194.0</b>	<b><u>FRONT BUMPER PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>194.1</b>	The front bumper shall be painted the same as the lower cab color. The front bumper trim shall feature a black spray-on bed liner coating.			



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195.0	<b><u>FRONT BUMPER TRIM</u></b>	YES	NO	EXCEPTIONS / NOTES
195.1	A stainless-steel trim angle shall be installed on the top corner of the bumper across the front and the top corner of the bumper tails. The trim angle shall measure 1.10 inches wide on the horizontal flange and 1.60 inches tall on the vertical flange.			
196.0	<b><u>FRONT BUMPER APRON</u></b>	YES	NO	EXCEPTIONS / NOTES
196.1	The 6.00-inch extended front bumper shall include an apron installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.			
197.0	<b><u>MECHANICAL SIREN</u></b>	YES	NO	EXCEPTIONS / NOTES
197.1	The front bumper shall include an electromechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated, and shall produce 123 decibels of sound at 10.00 feet. The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast-down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall include mounting hardware designed to recess or flush mount.			
198.0	<b><u>MECHANICAL SIREN LOCATION</u></b>	YES	NO	EXCEPTIONS / NOTES
198.1	The siren shall be recess mounted on the left side of the front fascia of the bumper, in the outboard position. The siren shall be mounted so the head of the siren is clear of the bumper in a “C” notch.			
199.0	<b><u>AIR HORN</u></b>	YES	NO	EXCEPTIONS / NOTES
199.1	The chassis shall include two (2) trumpet-style air horns with a chrome finish on the exterior and a painted finish deep inside the trumpet. The air horns shall be recess mounted in the front bumper face.			
200.0	<b><u>AIR HORN LOCATION</u></b>	YES	NO	EXCEPTIONS / NOTES
200.1	The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right-hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left-hand frame rail.			
201.0	<b><u>AIR HORN ACTIVATION</u></b>	YES	NO	EXCEPTIONS / NOTES
201.1	A chassis steering wheel button shall be provided to control the air horns.  One (1) air horn button shall be provided on the driver's side pump panel. The button shall be red in color and include a label reading "AIR HORN".			
202.0	<b><u>AIR HORN RESERVOIR</u></b>	YES	NO	EXCEPTIONS / NOTES
202.1	One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side.			



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<b>203.0</b>	<b><u>ELECTRONIC SIREN SPEAKER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>203.1</b>	There shall be one (1) 100-watt speaker. The speaker shall include a flat mounting flange which shall be polished aluminum.			
<b>204.0</b>	<b><u>ELECTRONIC SIREN SPEAKER LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>204.1</b>	The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the far outboard position.			
<b>205.0</b>	<b><u>FRONT BUMPER TOW EYES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>205.1</b>	The bumper shall include two (2) painted tow eyes that shall be installed through the front bumper. The tow eyes shall be fabricated from hot-rolled steel. The inside diameter of the tow eye shall be 2.00 inches and have inside/outside chamfered edges. The tow eyes shall be painted the same as the lower cab color.			
<b>206.0</b>	<b><u>TOW FORK PROVISION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>206.1</b>	Two (2) heavy-duty steel towing forks shall be bolted onto the underside of the frame flange and butted to the bottom frame with a fish plate joint. Each shall be shaped like an upside-down “U” to act as a designated hookup point to accept a tow bar from a service vehicle without having to reach the front axle.			
<b>207.0</b>	<b><u>CAB TILT SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>207.1</b>	<p>The entire cab shall be capable of tilting approximately 45 degrees. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.</p> <p>The electric-over-hydraulic lift system shall include an Ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the “Down” button to indicate safe road operation.</p> <p>Two (2) spring-loaded hydraulic hold-down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.</p> <p>Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be a 1.90-inch ball and be anchored to frame brackets with 1.25-inch diameter studs.</p> <p>A steel safety channel assembly painted safety yellow shall be installed on the right-side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.</p>			

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<b>208.0</b>	<b><u>CAB TILT LIMIT SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>208.1</b>	A cab tilt limit Switch shall be installed. The switch will effectively limit the travel of the cab when being tilted. The limit adjustment of the switch shall be preset by the chassis manufacturer to prevent damage to the cab, or any bumper-mounted option mounted in the cab tilt arc. Further adjustment to the limit by the apparatus manufacturer shall be available to accommodate additional equipment.			
<b>209.0</b>	<b><u>CAB TILT CONTROL RECEPTACLE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>209.1</b>	The cab tilt control cable shall include a receptacle which shall be temporarily located on the right-hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap. The remote-control pendant shall include 20.00 feet of cable with a mating Deutsch connector.			
<b>210.0</b>	<b><u>CAB TILT LOCKDOWN INDICATOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>210.1</b>	<p>The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold-down hooks are secured and locked to the cab mounts.</p> <p>In addition to the alert message, an audible alarm shall sound when the cab is unlocked and ajar and the parking brake is released.</p>			
<b>211.0</b>	<b><u>CAB WINDSHIELD</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>211.1</b>	The cab windshield shall be of a two (2) piece wraparound design for maximum visibility.			
<b>212.0</b>	<b><u>GLASS FRONT DOOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>212.1</b>	<p>The front cab doors shall include a window with the capability to roll down completely into the door housing. The left and right front door windows shall be controlled using a switch on each respective side inner door panel. The driver's door shall include a switch for each powered door window in the cab.</p> <p>The windows shall be mounted within the frame of the front doors trimmed with a black ring on the exterior.</p>			
<b>213.0</b>	<b><u>GLASS TINT FRONT DOOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>213.1</b>	The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance.			
<b>214.0</b>	<b><u>GLASS REAR DOOR RIGHT HAND</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>214.1</b>	The rear right-hand side crew door shall include a window. The window shall be a powered type and shall be controlled by a Switch on the door panel ledge and the driver's control panel.			
<b>215.0</b>	<b><u>GLASS TINT REAR DOOR RIGHT HAND</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>215.1</b>	The window located in the right-hand side rear window shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance.			

<b>216.0</b>	<b><u>GLASS REAR DOOR LEFT HAND</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>216.1</b>	The rear left-hand side crew door shall include a window. The window shall be a powered type and shall be controlled by a Switch on the door panel ledge and the driver's control panel.			
<b>217.0</b>	<b><u>GLASS TINT REAR DOOR LEFT HAND</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>217.1</b>	The window located in the left-hand side rear door shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance.			
<b>218.0</b>	<b><u>CLIMATE CONTROL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>218.1</b>	<p>A ceiling-mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of severe duty Design made of aluminum which shall be coated with a customer-specified interior paint. The Design of the system's covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items.</p> <p>The air delivery plenums provide targeted airflow. Adjustable louvers will provide comfort for all the occupants. The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be controlled independently.</p> <p>The system shall also provide heater pull-up performance that meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.</p> <p>A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.</p> <p>The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and flexible hose with EZ-Clip fittings.</p> <p>The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.</p>			
<b>219.0</b>	<b><u>CLIMATE CONTROL DRAIN</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>219.1</b>	The climate control system shall include a gravity drain for water management.			

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<b>220.0</b>	<b><u>CLIMATE CONTROL ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>220.1</b>	The heating, defrosting and air conditioning controls shall be in the center dash center switch panel, in a position that is easily accessible to the driver. The climate control shall be activated by a rotary switch. The center dash rocker switch panel shall include a switch to activate an HVAC rear blower control switch recessed in the upper forward face of the crew area forward-facing seat frame. The Switch shall be a rheostat type that will allow the rear crew control of the rear HVAC blower speed. When the rocker switch is turned off the HVAC rear blower speed shall be controlled by the front rotary control switch in the center dash.			
<b>221.0</b>	<b><u>HVAC OVERHEAD COVER PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>221.1</b>	The overhead HVAC cover shall be painted with a multi-tone texture finish.			
<b>222.0</b>	<b><u>HEATER HOSE INSULATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>222.1</b>	The heater hoses leading from the engine to the cab shall include a foam insulation wrap that runs the length of the hose improving heating in extremely cold climates. The heater hoses which shall be routed inside the cab shall not be insulated.			
<b>223.0</b>	<b><u>A/C CONDENSER LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>223.1</b>	A roof-mounted A/C condenser shall be installed on the left side of the cab, mid-roof.			
<b>224.0</b>	<b><u>A/C COMPRESSOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>224.1</b>	The air-conditioning compressor shall be a belt-driven, engine-mounted compressor. The compressor shall be compatible with R134-a refrigerant.			
<b>225.0</b>	<b><u>UNDER CAB INSULATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>225.1</b>	The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation. The insulation shall keep the decibel level at or above NFPA recommendations. The engine tunnel insulation shall meet or exceed FMVSS 302 flammability test. The cab floor insulation shall meet or exceed MVSS 302 flammability test.			
<b>226.0</b>	<b><u>INTERIOR TRIM FLOOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>226.1</b>	The floor of the cab shall be covered with a multi-layer mat consisting of sound-absorbing closed cell foam with a non-slip vinyl surface with a pebble-grain finish. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat. The floor shall have an overlay of aluminum embossed tread plate which shall feature a bed liner spray-on coating.			
<b>227.0</b>	<b><u>INTERIOR TRIM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>227.1</b>	The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable. The trim shall be constructed of insulated vinyl over a hardboard backing.			
<b>228.0</b>	<b><u>REAR WALL INTERIOR TRIM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>228.1</b>	The rear wall of the cab shall be trimmed with vinyl.			

<b>229.0</b>	<b><u>HEADER TRIM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>229.1</b>	The cab interior shall feature header trim over the driver and officer dash constructed of Marine Grade, minimum 0.13-inch-thick aluminum.			
<b>230.0</b>	<b><u>TRIM CENTER DASH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>230.1</b>	The main center dash area shall be constructed of Marine Grade, minimum 0.13-inch-thick aluminum plate. There shall be holes located on the top of the dash near each outer edge of the electrical access cover for ventilation. The center dash electrical access cover shall include a gas cylinder stay which shall hold the cover open during maintenance.			
<b>231.0</b>	<b><u>TRIM LEFT-HAND DASH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>231.1</b>	The left-hand dash shall be constructed of Marine Grade, minimum 0.13-inch-thick aluminum plate for a perfect fit around the instrument panel.			
<b>232.0</b>	<b><u>TRIM RIGHT-HAND DASH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>232.1</b>	The right-hand dash shall be constructed of Marine Grade, minimum 0.13 of an inch thick aluminum plate, and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. A glove compartment shall be included. The MDT provision shall be provided above the glove compartment.			
<b>233.0</b>	<b><u>POWER POINT DASH MOUNT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>233.1</b>	The cab shall include one (1) 12-volt cigarette lighter type receptacle in the switch panel to provide a power source for 12-volt electrical equipment. The cab shall also include two (2) Blue Sea dual universal serial bus (USB) charging receptacles in the cab dash Switch panel to provide a power source for USB chargeable electrical equipment. The USB ports shall be capable of a 5 Volt-2.1-amp total output. The receptacles shall be wired battery direct.			
<b>234.0</b>	<b><u>STEP TRIM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>234.1</b>	Each cab entry door shall include a three-step entry. The first step closest to the ground shall be constructed of polished aluminum grating with angled outer corners. The grating shall allow water and other debris to flow through rather than become trapped within the stepping surface. The step shall feature a splash guard to reduce water and debris from splashing into the step.  The splash guard shall have an opening on both sides and two (2) rows of slotted openings to allow debris and water to flow through rather than becoming trapped within the stepping surface. The lower step shall be mounted to a frame that is integral to the construction of the cab for rigidity and strength. The middle step shall be integral to the cab construction and shall be trimmed in a minimum of 0.08-inch-thick embossed aluminum tread plate.			

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<b>235.0</b>	<b><u>STEP TRIM KICKPLATE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>235.1</b>	The cab steps shall include a kick plate on the rise of each step.			
<b>236.0</b>	<b><u>UNDER CAB ACCESS DOOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>236.1</b>	Should the diesel exhaust fluid fill be located under the cab, there shall include an access door in the crew step riser constructed of an aluminum tread plate with a push and turn latch. The under-cab access door shall provide access to the diesel exhaust fluid reservoir.			
<b>237.0</b>	<b><u>INTERIOR DOOR TRIM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>237.1</b>	The interior trim on the doors of the cab shall consist of a two (2) piece panel constructed of stainless steel with a brushed finish.			
<b>238.0</b>	<b><u>DOOR TRIM CUSTOMER NAMEPLATE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>238.1</b>	The interior door trim on the front doors shall include a customer nameplate that states the vehicle was custom built for their Department.			
<b>239.0</b>	<b><u>CAB DOOR TRIM REFLECTIVE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>239.1</b>	The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the outer rear edge of the door. The lowest portion of each door shall include a reflective tape chevron with red and white stripes. The chevron tape shall measure 6.00 inches in height.			
<b>240.0</b>	<b><u>INTERIOR GRAB HANDLE "A" PILLAR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>240.1</b>	There shall be two (2) rubber-covered grab handles installed inside the cab, one on each "A" post at the left and right door openings. The handles shall assist personnel in entering and exiting the cab.			
<b>241.0</b>	<b><u>INTERIOR GRAB HANDLE FRONT DOOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>241.1</b>	Each front door shall include one (1) ergonomically contoured cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.			
<b>242.0</b>	<b><u>INTERIOR GRAB HANDLE REAR DOOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>242.1</b>	A cast aluminum assist handle shall be provided on the inside of each rear crew door. A handle shall extend horizontally the width of the window just above the windowsill. The handle shall include a textured red finish and assist personnel in exiting and entering the cab.			
<b>243.0</b>	<b><u>INTERIOR SOFT TRIM COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>243.1</b>	The cab interior soft trim surfaces shall be gray in color.			
<b>244.0</b>	<b><u>INTERIOR TRIM SUNVISOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>244.1</b>	The header shall include two (2) sun visors, one on each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.			
<b>245.0</b>	<b><u>INTERIOR FLOOR MAT COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>245.1</b>	The cab interior floor mat shall be gray in color.			



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<b>246.0</b>	<b><u>HEADER TRIM INTERIOR PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>246.1</b>	The metal surfaces in the header area shall feature a gray spray-on bed liner coating.			
<b>247.0</b>	<b><u>TRIM CENTER DASH INTERIOR PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>247.1</b>	The entire center dash and any accessory pods attached to the dash shall feature a gray spray-on bed liner coating.			
<b>248.0</b>	<b><u>TRIM LEFT-HAND DASH INTERIOR PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>248.1</b>	The left-hand dash shall feature a gray spray-on bed liner coating.			
<b>249.0</b>	<b><u>TRIM RIGHT-HAND DASH INTERIOR PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>249.1</b>	The right-hand dash shall feature a gray spray-on bed liner coating.			
<b>250.0</b>	<b><u>FLOOR INTERIOR PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>250.1</b>	The metal surfaces on the floor of the cab shall feature a gray spray-on bed liner coating.			
<b>251.0</b>	<b><u>DASH PANEL GROUP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>251.1</b>	The main center dash area shall include three (3) aluminum removable panels located one (1) to the right of the driver position, one (1) in the center of the dash, and one (1) to the left of the officer position. The panels shall be coated with a black texture finish. The center panel shall be within comfortable reach of both the driver and the officer.			
<b>252.0</b>	<b><u>SWITCHES CENTER PANEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>252.1</b>	The center dash panel shall include six (6) switch positions in the upper left portion of the panel.  A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.			
<b>253.0</b>	<b><u>SWITCHES LEFT PANEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>253.1</b>	The left dash panel shall include five (5) switches. There shall be three (3) across the top of the panel with two (2) below. Two (2) of the top rows of switches shall be rocker type and the left one (1) shall be the windshield wiper/washer control switch. The lower switches shall be a rocker-type switch.  A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated Switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.			
<b>254.0</b>	<b><u>SWITCHES RIGHT PANEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>254.1</b>	The right dash panel shall include no rocker switches or legends.			



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<b>255.0</b>	<b><u>SEAT BELT WARNING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>255.1</b>	<p>A seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the multiplex display and control screen(s) for each seat and a single belt indicator light in the switch panel.</p> <p>The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the parking brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the parking brake is released. Once activated, the visual indicators and applicable audible alarm shall remain active until all occupied seats have the seat belts fastened.</p>			
<b>256.0</b>	<b><u>SEAT MATERIAL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>256.1</b>	<p>The Bostrom Firefighter seats shall include a covering of extra high strength, tear resistant, and waterproof fabric made of durable Durawear Plus™ 1800 denier ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Durawear Plus shall include low seam stitching to eliminate seam wear. Durawear Plus™ meets or exceeds the specification of the common trade name Imperial 1800. The material meets FMVSS 302 flammability requirements.</p> <p>Seats shall be Foam Block™ encapsulated foam with Zip Clean covers. The encapsulated Foam Block™ feature shall resist gas and liquid absorption in the cushion. Seat cushions, headrest, and side bolsters shall zip off using a heavy-duty skirted zipper to allow for quick removal and easy cleaning. All zip-off covers are designed for machine washing and air drying.</p> <p>One (1) extra seat cushion and applicable back cover(s) shall be provided per seating position.</p>			
<b>257.0</b>	<b><u>SEAT COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>257.1</b>	All seats supplied with the chassis shall be black in color. All seats shall include red seat belts.			
<b>258.0</b>	<b><u>SEAT DRIVER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>258.1</b>	The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment, and seat rake adjustment. The seat shall feature integral springs to isolate shock.			

258.2	<p>The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment, and seat rake adjustment. The seat shall feature integral springs to isolate shock.</p> <p>The seat shall feature an all-belts-to-seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor, and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.</p> <p>The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.</p> <p>This model of the seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.</p> <p>The materials used in the construction of the seat shall also have successfully completed testing regarding the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.</p>			
<b>259.0</b>	<b><u>SEAT BACK DRIVER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>259.0</b>	The driver's seat shall include a standard seat back incorporating an all-belts-to-seat feature (ABTS). The seat back shall feature a contoured headrest.			
<b>260.0</b>	<b><u>SEAT MOUNTING DRIVER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>260.1</b>	The driver's seat shall be installed in an ergonomic position in relation to the cab dash.			
<b>261.0</b>	<b><u>ADDITIONAL SEAT COVER DRIVER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>261.1</b>	One (1) set of additional seat cushions and seat back covers shall be provided for the driver's position. The seat back cover shall either be a single piece for non-SCBA backs or a set of covers for bolsters and head cushions around the SCBA backs, dependent on seat back style.			

262.0	<b><u>SEAT OFFICER</u></b>	YES	NO	EXCEPTIONS / NOTES
	<p>The officer's seat shall be an H.O. Bostrom 500 Series Sierra model seat. The seat shall feature two-way manual adjustment and shall include a tapered and padded seat cushion. The seat shall also feature integral springs to isolate shock.</p> <p>The seat shall feature an all-belts-to-seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor, and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.</p>			
262.1	<p>The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00.</p> <p>This model of the seat shall have successfully completed the static load tests by FMVSS 207, 209, 210, and 302 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, which decides the burning rate of materials in the occupant compartments of motor vehicles.</p>			
263.0	<b><u>SEAT BACK OFFICER</u></b>	YES	NO	EXCEPTIONS / NOTES
263.1	<p>The officer's seat back shall include an IMMI brand SmartDock® Gen 2 hands-free self-contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.</p> <p>The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA-fitted seat occupant rises.</p> <p>The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.</p>			

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<b>264.0</b>	<b><u>SEAT MOUNTING OFFICER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>264.1</b>	The officer's seat shall offer a special mounting position which is 4.00 inches rearward of the standard location offering increased leg room for the occupant.			
<b>265.0</b>	<b><u>ADDITIONAL SEAT COVER OFFICER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>265.1</b>	One (1) set of additional seat cushions and seat back covers shall be provided for the officer's position. The seat back cover shall either be a single piece for non-SCBA backs or a set of covers for bolsters and head cushions around the SCBA backs, dependent on seat back style.			
<b>266.0</b>	<b><u>POWER SEAT WIRING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>266.1</b>	The power seat or seats installed in the cab shall be wired directly to battery power.			
<b>267.0</b>	<b><u>SEAT REAR-FACING OUTER LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>267.1</b>	The crew area shall include two (2) rear-facing outboard seats, which include one (1) located next to the outer wall of the cab on the left side of the cab behind the driver's seat and one (1) located next to the outer wall on the right side of the cab behind the officer's seat.			
<b>268.0</b>	<b><u>SEAT CREW REARWARD FACING OUTER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>268.1</b>	<p>The crew area shall include a seat in the rear-facing outer position which shall be an H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be fixed and compact in design. The seat shall be in a securely fixed position to prevent the seat from moving.</p> <p>The seat shall feature an all-belts-to-seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.</p> <p>The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.</p>			

268.2	This model of the seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. To reflect the larger size of outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, which decides the burning rate of materials in the occupant compartments of motor vehicles.			
269.0	<b><u>SEAT BACK REARWARD-FACING OUTER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
269.1	<p>The crew area seat backs shall include an IMMI brand SmartDock® Gen 2 hands-free self-contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.</p> <p>The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA-fitted seat occupant rises.</p> <p>The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.</p>			
270.0	<b><u>SEAT MOUNTING REARWARD FACING OUTER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
270.1	The rear-facing outer seat frame mounting holes shall be mounted 1.00-inch inboard from the outer edge of the rear-facing seat frame.			
271.0	<b><u>ADDITIONAL SEAT COVER REARWARD FACING OUTER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
271.1	One (1) set of additional seat cushions and seat back covers shall be provided for each rear-facing outer position. The seat back cover shall either be a single piece for non-SCBA backs or a set of covers for bolsters and head cushions around the SCBA backs, dependent on seat back style in each position.			

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<b>272.0</b>	<b><u>SEAT FRAME REARWARD FACING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>272.1</b>	Two rear-facing outboard seating positions shall include an enclosed-style seat frame located and installed at the behind the driver seat and officer seat. These seats will face the forward-facing seats. The seat box shall be painted the same color as the remaining interior.			
<b>273.0</b>	<b><u>SEAT BELT ORIENTATION CREW</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>273.1</b>	The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip. This seat belt orientation is for both rearward and forward facing crew seats.			
<b>274.0</b>	<b><u>SEAT FRAME FORWARD FACING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>274.1</b>	Two forward-facing outboard seating positions shall include an enclosed-style seat frame located and installed at the rear wall. These seats will face the rearward facing seats. The seat box shall be painted the same color as the remaining interior.			

275.0	SEAT CREW FORWARD FACING OUTER	YES	NO	EXCEPTIONS / NOTES
275.1	<p>The crew area shall include a seat in the forward-facing outer position which shall be an H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be hinged and compact in design for additional room. The seat shall include a “Fold and Hold” feature so that the cushion shall remain in the seated position and simply touch to flip up.</p> <p>The seat shall feature an all-belts-to-seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.</p> <p>The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.</p> <p>This model of the seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. To reflect the larger size of outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, which decides the burning rate of materials in the occupant compartments of motor vehicles.</p>			



276.0	<b><u>SEAT BACK FORWARD-FACING OUTER</u></b>	YES	NO	EXCEPTIONS / NOTES
276.1	<p>The crew area seat backs shall include an IMMI brand SmartDock® Gen 2 hands-free self-contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.</p> <p>The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA-fitted seat occupant rises.</p> <p>The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.</p>			
277.0	<b><u>SEAT MOUNTING FORWARD FACING OUTER</u></b>	YES	NO	EXCEPTIONS / NOTES
277.1	The forward-facing outer seat frame mounting holes shall be mounted 1.00-inch inboard from the outer edge of the forward-facing seat frame.			
278.0	<b><u>ADDITIONAL SEAT COVER FORWARD FACING OUTER</u></b>	YES	NO	EXCEPTIONS / NOTES
278.1	One (1) set of additional seat cushions and seat back covers shall be provided for each forward-facing outer position. The seat back cover shall either be a single piece for non-SCBA backs or a set of covers for bolsters and head cushions around the SCBA backs, dependent on seat back style in each position.			
279.0	<b><u>FORWARD-FACING STORAGE</u></b>	YES	NO	EXCEPTIONS / NOTES
279.1	There shall be two (2) access points to the seat frame storage area, one underneath each seat frame. Each access point shall be covered by netting.			
279.2	There shall be a storage box equipped with netting located in between the forward facing outer crew seats. This box shall not extend past the depth of the frame of the seats themselves and will not extend from the floor to the ceiling of the cab. This box will be mounted to the back of the cab wall and the dimensions shall be approximately 40inches in height and 20 inches in depth. The width of the box shall be designed to fill the space between the forward facing seating completely. Exact dimensions will be finalized during pre-construction.			
280.0	<b><u>CAB FRONT UNDER-SEAT STORAGE ACCESS</u></b>	YES	NO	EXCEPTIONS / NOTES
280.1	The left and right under-seat storage areas shall have a solid aluminum hinged door with a non-locking latch.			

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281.0	<b><u>SEAT COMPARTMENT DOOR FINISH</u></b>	YES	NO	EXCEPTIONS / NOTES
281.1	All under-seat storage compartment access doors shall feature a medium gray spray-on bed liner coating.			
282.0	<b><u>ACTIVE AIR PURIFICATION SYSTEM</u></b>	YES	NO	EXCEPTIONS / NOTES
282.1	<p>The vehicle shall be equipped with an Active Air Purification system to provide purification of the air inside the apparatus. Model: CAPS Commuter, 12 VDC System Certification/Testing</p> <p>The system will/shall be 3rd party tested to verify H2O2 production at 0.02 ppm, and to support virus and bacteria kill rates. The manufacturer must be ISO 9001:2015 certified and an EPA Registered establishment. The system will/shall meet all applicable sections of IEC 61373:2010 for shock and vibration, and SAE J1455 for electrical specifications. 3rd Party testing must be performed for effectiveness against SARS-CoV-2 in a chamber at least 1,280 cubic feet in size. [No Exceptions]</p> <p>System Operating Conditions</p> <p>The unit will/shall be resistant to dust particles normally found in apparatus. The working temperature of the system will/shall be - 22°F to 149°F (-30°C to 65°C).</p> <p>The unit will/shall be permitted to operate at any time with or without occupants in the cab and will/shall pose no harm to the occupants from H2O2, Ozone, or UVC light [No Exceptions]</p> <p>Mounting location will be determined at preconstruction meeting.</p>			
283.0	<b><u>WINDSHIELD WIPER SYSTEM</u></b>	YES	NO	EXCEPTIONS / NOTES
283.1	The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice, and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.			
284.0	<b><u>ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR</u></b>	YES	NO	EXCEPTIONS / NOTES
284.1	The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.			

<b>285.0</b>	<b><u>CAB DOOR HARDWARE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>285.1</b>	<p>The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of aluminum with a chrome-plated finish.</p> <p>The interior exit door handles shall be flush paddle type with a black finish, which is incorporated into the upper door panel.</p> <p>All cab entry doors shall include locks that are keyed alike. The door locks shall be designed to prevent an accidental lockout.</p> <p>The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel.</p>			
<b>286.0</b>	<b><u>DOOR LOCKS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>286.1</b>	Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab utilizing a red knob located on the paddle handle of the respective door or by using a key from the exterior.			
<b>287.0</b>	<b><u>REMOVED</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>287.1</b>	<b><u>REMOVED</u></b>			
<b>288.0</b>	<b><u>REMOVED</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>288.1</b>	<b><u>REMOVED</u></b>			
<b>289.0</b>	<b><u>GRAB HANDLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>289.1</b>	The cab shall include one (1) knurled aluminum, anti-slip exterior assist handle, installed behind each cab door. The assist handle shall be made of extruded aluminum with a knurled finish to enable non-slip assistance with a gloved hand.			
<b>290.0</b>	<b><u>LIGHTED GRAB HANDLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>290.1</b>	The grab rails shall include a 12-volt, clear LED light to provide an increased margin of safety for nighttime cab entry and egress.			
<b>291.0</b>	<b><u>REARVIEW MIRRORS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>291.1</b>	<p>Dual vision mirror heads shall be provided and installed on each of the front cab doors.</p> <p>The mirrors shall be mounted via tubular stainless-steel arms to provide a rigid mounting to reduce mirror vibration.</p> <p>The mirrors shall include integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver.</p> <p>The mirrors shall be constructed of chrome-plated plastic housing that is corrosion-resistant.</p>			
<b>292.0</b>	<b><u>AUXILIARY EXTERIOR MIRRORS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>292.1</b>	The cab exterior shall include one (1) 10.00-inch diameter polished stainless steel convex look-down mirror.			

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293.0	<b><u>EXTERIOR TRIM REAR CORNER</u></b>	YES	NO	EXCEPTIONS / NOTES
293.1	There shall be mirror finish stainless steel scuff plates on the outside corners at the back of the cab. The stainless-steel plate shall be affixed to the cab using two-sided adhesive tape.			
294.0	<b><u>TRIM REAR WALL EXTERIOR</u></b>	YES	NO	EXCEPTIONS / NOTES
294.1	The exterior rear wall of the cab shall include an overlay of an aluminum tread plate. This overlay shall cover the entire rear wall of the cab.			
295.0	<b><u>CAB FENDER</u></b>	YES	NO	EXCEPTIONS / NOTES
295.1	Full-width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum-formed ABS composite and an outer fenderette 3.50 inches wide made of rubber.			
296.0	<b><u>MUD FLAPS FRONT</u></b>	YES	NO	EXCEPTIONS / NOTES
296.1	The front wheel wells shall have mud flaps installed on them.			
297.0	<b><u>IGNITION</u></b>	YES	NO	EXCEPTIONS / NOTES
297.1	A master battery system with a keyless start ignition system shall be provided.			
298.0	<b><u>BATTERY</u></b>	YES	NO	EXCEPTIONS / NOTES
298.1	<p>The single start electrical system shall include six (6) Delco BCI 31 700 CCA batteries with a 180-minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.</p> <p>There shall be a 500-amp Blue Sea magnetic latching (bi-stable) relay installed that automatically combines batteries during charging and isolates batteries when discharging and when starting the engine.</p> <p>Start Isolation shall be configured for temporary isolation of house loads from engine circuits during engine cranking to protect sensitive electronics. The relay shall isolate the right front battery when the truck is starting. It shall not disengage the isolation until 3 - 5 minutes after the truck is running.</p> <p>The included auto charge relay includes LED output to remotely indicate when batteries are combined, isolated, in voltage lockout, or in Start or Engine isolation.</p>			
299.0	<b><u>BATTERY TRAY</u></b>	YES	NO	EXCEPTIONS / NOTES
299.1	The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.			
299.2	The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat shall be installed on the bottom of the trays to allow for airflow and help prevent moisture buildup. The batteries shall be held in place by non-conducting phenolic resin hold-down boards.			

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<b>300.0</b>	<b><u>BATTERY BOX COVER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>300.1</b>	Each battery box shall include a steel cover that protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder-coated handle for convenience when opening.			
<b>301.0</b>	<b><u>BATTERY CABLE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>301.1</b>	The starting system shall include cables which shall be protected by a 275-degree F. minimum high-temperature flame retardant loom, sealed at the ends with heat shrink and sealant.			
<b>302.0</b>	<b><u>BATTERY JUMPER STUD</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>302.1</b>	The starting system shall include battery jumper studs. These studs shall be in the forward most portion of the driver's side lower step, 8.00 inches apart. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.			
<b>303.0</b>	<b><u>ALTERNATOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>303.1</b>	The charging system shall include a 360-amp Niehoff 12-volt alternator. The alternator shall include both ignition and external regulators.			
<b>304.0</b>	<b><u>STARTER MOTOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>304.1</b>	The single start electrical system shall include a Delco brand starter motor.			
<b>305.0</b>	<b><u>AUXILIARY AIR COMPRESSOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>305.1</b>	A GAST brand 120V air compressor shall be supplied. The air compressor shall be installed behind the driver's seat. The air compressor shall be plumbed into the air brake system to maintain air pressure.  There shall also be an aluminum treadplate protective cover fabricated with open ends to allow for adequate ventilation.			
<b>306.0</b>	<b><u>ELECTRICAL INLET LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>306.1</b>	An electrical inlet shall be installed in the left-hand side lower front step in the mid-forward position.			
<b>307.0</b>	<b><u>ELECTRICAL INLET</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>307.1</b>	A Kussmaul 20-amp electrical receptacle shall be supplied.  A single item or addition of multiple items must not exceed the rating of the electric inlet that it's connected to.			
<b>308.0</b>	<b><u>ELECTRICAL INLET CONNECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>308.1</b>	The electrical inlet shall be connected to the air pump.			
<b>309.0</b>	<b><u>ELECTRICAL INLET COVER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>309.1</b>	The electrical inlet connection shall include a cover.			
<b>310.0</b>	<b><u>HEADLIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>310.1</b>	The cab front shall include two (2) FireTech rectangular LED headlamps with high/low beams in the same housing and two (2) separate FireTech LED high beam-only headlamps mounted in bright chrome bezels.			

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<b>311.0</b>	<b><u>HEADLIGHT LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>311.1</b>	The headlights shall be located on the front fascia of the cab directly below the front warning lights.			
<b>312.0</b>	<b><u>FRONT TURN SIGNALS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>312.1</b>	The front fascia shall include two (2) Whelen model 600 4.00-inch X 6.00-inch programmable amber LED turn signals. These shall be installed in a polished aluminum radius mount housing above and outboard of the front warning and headlamps.			
<b>313.0</b>	<b><u>SIDE TURN/MARKER LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>313.1</b>	The sides of the cab shall include two (2) LED side marker lights which shall be provided just behind the front cab radius corners. The lights shall be amber with chrome bezels.			
<b>314.0</b>	<b><u>MARKER AND ICC LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>314.1</b>	In accordance with FMVSS, there shall be five (5) marker lamps on the front of the vehicle designating identification and clearance. There shall be five (5) face-mounted lights integrated into the scene light.			
<b>315.0</b>	<b><u>HEADLIGHT AND MARKER LIGHT ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>315.1</b>	The headlights and marker lights shall be controlled via a virtual button on the multiplex display. There shall be a virtual dimmer control on the multiplex display to adjust the brightness of the dash lights. The headlamps and markers lamps shall illuminate to 100% brilliance when the ignition switch is in the "On" position.			
<b>316.0</b>	<b><u>LIGHTBAR SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>316.1</b>	The light bar shall be controlled through a virtual button on the multiplex display and control screen.			
<b>317.0</b>	<b><u>INTERIOR OVERHEAD LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>317.1</b>	The cab shall include an LED dome lamp located over each door. The lights shall include push switches on each lamp to activate both the clear and red portions of the light individually.			
<b>318.0</b>	<b><u>INTERIOR OVERHEAD LIGHTS ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>318.1</b>	The clear portion of each lamp shall be activated by opening the respective door and via the multiplex display.			
<b>319.0</b>	<b><u>LIGHTBAR PROVISION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>319.1</b>	There shall be three (3) light bars installed on the cab roof. The light bar installation shall include mounting and wiring to a control switch on the cab dash.			
<b>320.0</b>	<b><u>CAB FRONT LIGHTBAR MODEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>320.1</b>	The cab shall be provided with one (1) Whelen model F4N92 Rota-Beam light bar. The light bar shall be 92.00 inches in length and feature twenty-two (22) customizable pods.			
<b>321.0</b>	<b><u>CAB SIDE LIGHTBAR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>321.1</b>	There shall be two (2) Mini Rota-Beam lightbars mounted on one (1) on the left and one (1) right side of the cab roof parallel to the side of the cab above the left and right rear doors.  The lightbars shall be NFPA compliant and shall feature three (3) red LED rotator light modules per lightbar.			



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<b>322.0</b>	<b><u>FRONT SCENE LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>322.1</b>	The front of the cab shall include one (1) HiViz model FireTech FT-B-72-ML-W LED scene light installed on the brow of the cab in the lower position. The light shall feature (5) five integrated marker lights. The housing shall be powder-coated white.			
<b>323.0</b>	<b><u>FRONT SCENE LIGHT LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>323.1</b>	There shall be one (1) scene light mounted center on the front brow of the cab.			
<b>324.0</b>	<b><u>FRONT SCENE LIGHTS ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>324.1</b>	The front scene lighting shall be activated by a virtual button on the multiplex display and control screen.			
<b>325.0</b>	<b><u>SIDE SCENE LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>325.1</b>	The side of the cab shall include two (2) Firetech model FT-GESM Guardian Elite LED scene lights, one (1) on each side which shall be surface mounted with a chrome bezel.			
<b>326.0</b>	<b><u>SIDE SCENE LIGHT LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>326.1</b>	The scene lighting located on the left and right sides of the cab shall be mounted in the upper forward portion of the cab between the front and rear crew doors.			
<b>327.0</b>	<b><u>SIDE SCENE ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>327.1</b>	The scene lights shall be activated by opening the respective side cab doors and by a virtual button on the multiplex display and control screen.			
<b>328.0</b>	<b><u>AUXILIARY SIDE SCENE LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>328.1</b>	The light bar shall include two (2) side scene lights.			
<b>329.0</b>	<b><u>AUXILIARY SIDE SCENE LIGHT ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>329.1</b>	The additional side scene lighting shall be activated via one (1) virtual button on the multiplex display and control screen as well as the respective primary side scene light.			
<b>330.0</b>	<b><u>GROUND LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>330.1</b>	Each door shall include an LED ground light mounted to the underside of the cab step below each door.			
<b>331.0</b>	<b><u>GROUND LIGHT CONTROL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>331.1</b>	The ground lighting shall be activated when the parking brake is set and through a virtual button on the multiplex display and control screen.			
<b>332.0</b>	<b><u>UNDER BUMPER LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>332.1</b>	There shall be two (2) 4.00-inch round LED NFPA-compliant ground lights mounted under the bumper.  The under-bumper ground lighting shall be interlocked with the parking brake and the marker light activation.			
<b>333.0</b>	<b><u>LOWER CAB STEP LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>333.1</b>	The middle step located at each door shall include an LED light which shall activate with the opening of the respective door.			



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334.0	<b><u>INTERMEDIATE STEP LIGHTS</u></b>	YES	NO	EXCEPTIONS / NOTES
334.1	The intermediate step well area at each door shall include an LED light within a chrome housing. The egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The egress step lights shall activate with entry step lighting.			
335.0	<b><u>ENGINE COMPARTMENT LIGHT</u></b>	YES	NO	EXCEPTIONS / NOTES
335.1	There shall be a LED NFPA-compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall activate automatically when the cab is tilted.			
336.0	<b><u>DO NOT MOVE APPARATUS LIGHT</u></b>	YES	NO	EXCEPTIONS / NOTES
336.1	<p>The front headliner of the cab shall include a flashing red Whelen 500 Series TIR6™ Super-LED® light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.</p> <p>The flashing red light shall be 5.40 inches long X 1.70 inches wide X 0.90 inches high and shall be located centered left to right for the greatest visibility.</p> <p>The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.</p>			
337.0	<b><u>MASTER WARNING SWITCH</u></b>	YES	NO	EXCEPTIONS / NOTES
337.1	A master switch shall be included, as a virtual button on the multiplex display and control screen which shall be labeled "E Master" for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the "ON" position when the master switch is activated shall automatically power up.			
338.0	<b><u>HEADLIGHT FLASHER</u></b>	YES	NO	EXCEPTIONS / NOTES
338.1	<p>The LED Halo ring shall alternate from left to right on the driver side, outer to inner light and the LED Halo ring shall alternate from right to left on the officer side, outer to inner light.</p> <p>Deliberate operator selection of high beams will override the flashing function until low beams are again selected.</p>			
339.0	<b><u>HEADLIGHT FLASHER SWITCH</u></b>	YES	NO	EXCEPTIONS / NOTES
339.1	The flashing headlights shall be activated through a virtual button on the multiplex display and control screen. There shall be no blocking mode on clear warning lights.			
340.0	<b><u>INBOARD FRONT WARNING LIGHTS</u></b>	YES	NO	EXCEPTIONS / NOTES
340.1	The cab front fascia shall include two (2) Whelen 600 Series Super LED Rota-Beam front warning lights in the left and right inboard positions. The lights shall be mounted to the front fascia of the cab within a chrome bezel. The lights shall be programmed to emit the "Rotator 150" counterclockwise flash pattern.			

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<b>341.0</b>	<b><u>INBOARD FRONT WARNING LIGHTS COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>341.1</b>	The warning lights mounted on the cab front fascia in the inboard positions shall be red.			
<b>342.0</b>	<b><u>OUTBOARD FRONT WARNING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>342.1</b>	The cab front fascia shall include two (2) Whelen 600 series Super LED Rota-Beam front warning lights in the left and right outboard positions. The lights shall be mounted to the front fascia of the cab within a chrome bezel. The lights shall be programmed to emit the "Rotator 150" clockwise flash pattern.			
<b>343.0</b>	<b><u>OUTBOARD FRONT WARNING LIGHTS COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>343.1</b>	The warning lights mounted on the cab front fascia in the outboard position shall be clear.			
<b>344.0</b>	<b><u>FRONT WARNING SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>344.1</b>	The front warning lights shall be controlled through a virtual control on the multiplex display and control screen.			
<b>345.0</b>	<b><u>INTERSECTION WARNING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>345.1</b>	The chassis shall include two (2) Whelen 600 series Super LED intersection warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.			
<b>346.0</b>	<b><u>INTERSECTION WARNING LIGHTS COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>346.1</b>	The intersection lights shall be red.			
<b>347.0</b>	<b><u>INTERSECTION WARNING LIGHTS' LOCATIONS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>347.1</b>	The intersection warning lights shall be centered on each of the flat surfaces of the steel channel bumper's angled front right and left corners.			
<b>348.0</b>	<b><u>SIDE WARNING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>348.1</b>	The cab sides shall include two (2) Whelen 600 series Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel.			
<b>349.0</b>	<b><u>SIDE WARNING LIGHTS COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>349.1</b>	The warning lights located on the side of the cab shall be red.			
<b>350.0</b>	<b><u>SIDE WARNING LIGHTS' LOCATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>350.1</b>	The warning lights on the side of the cab shall be mounted over the front wheel well forward from the center of the front axle.			
<b>351.0</b>	<b><u>SIDE AND INTERSECTION WARNING SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>351.1</b>	The side warning lights shall be controlled through a virtual button on the multiplex display and control screen. This button shall be clearly labeled for identification.			
<b>352.0</b>	<b><u>TRAFFIC CONTROL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>352.1</b>	There shall be one (1) GTT (Global Traffic Technologies) Opticom model 795H traffic control optical emitter mounted in the lightbar on the front of the cab roof. There shall be an indicator light on the dash. The emitter shall be activated by the master warning switch and shall be deactivated when the parking brake is applied.			

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353.0	<b><u>ROTO-RAYS WARNING LIGHT</u></b>	YES	NO	EXCEPTIONS / NOTES
353.1	<p>A Roto-Rays® warning light shall be provided on the cab. The Roto-Rays light shall consist of three (3) round chrome heads, each equipped with an LED light. The LED lights shall be one (1) red, one (1) clear, and one (1) green in color. The Roto-Rays light shall be installed on the top center of the cab front fascia using a custom bracket.</p> <p>When activated, the entire light head assembly shall rotate at 200 RPM.</p>			
354.0	<b><u>ROTO-RAYS WARNING LIGHT SWITCH</u></b>	YES	NO	EXCEPTIONS / NOTES
354.1	The Roto-Rays® front warning light(s) shall be separately controlled through a virtual button on the multiplex display and control screen. When the parking brake is engaged, the light shall stop rotating.			
355.0	<b><u>INTERIOR DOOR OPEN WARNING LIGHTS</u></b>	YES	NO	EXCEPTIONS / NOTES
355.1	The interior of each door shall include one (1) LED warning light. The light shall be located on the upper portion of the door frame to be visible when a person is standing in front of the door while entering or exiting the cab. Each light shall activate with a scrolling directional flash pattern which moves from inside to outside when the door is in the open position.			
356.0	<b><u>SIREN CONTROL HEAD</u></b>	YES	NO	EXCEPTIONS / NOTES
356.1	A Whelen electronic siren control head with remote amplifier shall be provided and flush mounted in the Switch panel with a location specific to the customer's needs. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones, and hands-free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector Switch option is also selected.			
357.0	<b><u>STEERING WHEEL HORN BUTTON SELECTOR SWITCH</u></b>	YES	NO	EXCEPTIONS / NOTES
357.1	A virtual button on the multiplex display and control screen shall be provided to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector Switch is in either position to meet FMCSA requirements.			
358.0	<b><u>AUDIBLE WARNING LEFT-HAND FOOT SWITCH</u></b>	YES	NO	EXCEPTIONS / NOTES
358.1	Two (2) foot-actuated switches shall be supplied for installation in the front section of the cab for driver actuation. One (1) switch shall be wired to actuate the air horn(s) and one (1) switch the mechanical siren(s).			
359.0	<b><u>AIR HORN FOOT SWITCH LEFT HAND</u></b>	YES	NO	EXCEPTIONS / NOTES
359.1	The air horn foot switch shall be located on the left-hand side of the driver in an easily reachable location.			
360.0	<b><u>MECHANICAL SIREN FOOT SWITCH LEFT HAND</u></b>	YES	NO	EXCEPTIONS / NOTES
360.1	There shall be a mechanical siren foot switch.			

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<b>361.0</b>	<b><u>AUDIBLE WARNING LEFT-HAND FOOT SWITCH BRACKET</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>361.1</b>	A 30.00-degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be provided.			
<b>362.0</b>	<b><u>AUDIBLE WARNING RIGHT-HAND FOOT SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>362.1</b>	Two (2) foot-actuated switches shall be supplied for installation in the front section of the cab for officer actuation. One (1) switch shall be wired to actuate the air horn(s) and one (1) switch the mechanical siren(s).			
<b>363.0</b>	<b><u>AIR HORN FOOT SWITCH RIGHT HAND</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>363.1</b>	The air horn foot switch located on the right-hand side of the Cab shall be located in an easily reachable location.			
<b>364.0</b>	<b><u>MECHANICAL SIREN FOOT SWITCH RIGHT HAND</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>364.1</b>	There shall be a mechanical Siren Foot switch on the right-hand side of the truck.			
<b>365.0</b>	<b><u>MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>365.1</b>	Two (2) red push button type momentary type siren brakes shall be provided in the switch panel on the dash.			
<b>366.0</b>	<b><u>MECHANICAL SIREN INTERLOCK</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>366.1</b>	The siren shall only be active when the master warning switch is on to prevent accidental engagement.			
<b>367.0</b>	<b><u>BACK-UP ALARM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>367.1</b>	A backup alarm shall be installed at the rear of the chassis with an output level of 107 db minimum. The alarm shall automatically activate when the transmission is placed in reverse.			
<b>368.0</b>	<b><u>INSTRUMENTATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>368.1</b>	<p>An instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the data bus to reduce redundant sensors and wiring.</p> <p>An icon lightbar message center with an integral LCD odometer/trip odometer shall be included. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.</p>			
<b>368.2</b>	<p>The instrument panel shall contain the following gauges:</p> <p>One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or low DEF at 1/8th tank level.</p>			

368.3	<p>One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.</p> <p>One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (°F) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm shall indicate high coolant temperature. The scale on the voltmeter shall read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds following the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 100 to 300 degrees °F with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.</p> <p>The light bar portion of the message center shall include twenty-eight (28) LED-backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:</p> <p><b><u>RED INDICATORS</u></b></p> <ul style="list-style-type: none"> <li>• Stop Engine - indicates critical engine fault</li> <li>• Air Filter Restricted - indicates excessive engine air intake restriction.</li> <li>• Park Brake - indicates parking brake is set</li> <li>• Seat Belt - indicates a seat is occupied and the corresponding seat belt remains unfastened</li> <li>• Low Coolant - indicates critically low engine coolant</li> <li>• Cab Tilt Lock - indicates the cab tilt system locks are not engaged.</li> </ul> <p><b><u>AMBER INDICATORS</u></b></p> <ul style="list-style-type: none"> <li>• Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault</li> <li>• Check Engine - indicates engine fault</li> <li>• Check Transmission - indicates transmission fault</li> <li>• Anti-Lock Brake System (ABS) - indicates an anti-lock brake system fault</li> <li>• High exhaust system temperature – indicates elevated exhaust temperatures</li> </ul>			
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<b>369.0</b>	<b><u>BACKLIGHTING COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>369.1</b>	The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.			
<b>370.0</b>	<b><u>AUXILIARY SPEEDOMETER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>370.1</b>	The dash shall include an auxiliary analog speedometer.			
<b>371.0</b>	<b><u>CAMERA</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>371.1</b>	A heavy-duty 360° camera system shall be supplied. Three (3) HD cameras with box-shaped housing shall be installed in the body to afford the driver a clear view of the rear and sides of the vehicle and one (1) HD camera shall be mounted on the front of the cab, above the windshield. The system shall provide a dual camera view. One (1) view shall be a stitched bird's eye 360.00 degrees view around the truck and one (1) shall be a direct feed from a single camera. This feed shall display the rear camera when the transmission is placed in reverse, the left or right camera with the activation of the respective side turn signal, or the front camera at all other times.			
<b>372.0</b>	<b><u>CAMERA DISPLAY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>372.1</b>	The camera system shall be wired to a single display located on the driver's side dash. The camera system display can be activated through the multiplex display panel.			
<b>373.0</b>	<b><u>CAB EXTERIOR PROTECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>373.1</b>	The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.			
<b>374.0</b>	<b><u>FIRE EXTINGUISHER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>374.1</b>	A 2.50-pound D.O.T-approved fire extinguisher with a BC rating shall be provided.			
<b>375.0</b>	<b><u>ROAD SAFETY KIT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>375.1</b>	The cab and chassis shall include one (1) emergency road safety triangle kit.			
<b>376.0</b>	<b><u>DOOR KEYS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>376.1</b>	The cab and chassis shall include a total of four (4) door keys for the manual door locks.			
<b>377.0</b>	<b><u>WARRANTY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>377.1</b>	The manufacturer shall provide a Lifetime Custom Chassis warranty			
<b>378.0</b>	<b><u>CHASSIS OPERATION MANUAL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>378.1</b>	There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.			



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379.0	<b><u>ENGINE AND TRANSMISSION OPERATION MANUALS</u></b>	YES	NO	EXCEPTIONS / NOTES
379.1	The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items: (1) Hard copy of the Engine Operation and Maintenance Manual with a digital copy  (1) Digital copy of the Transmission Operator's manual  (1) Digital copy of the Engine Owner's manual			
380.0	<b><u>CAB/CHASSIS AS BUILT WIRING DIAGRAMS</u></b>	YES	NO	EXCEPTIONS / NOTES
380.1	The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.			
381.0	<b><u>AIR OUTLET ON PUMP PANEL</u></b>	YES	NO	EXCEPTIONS / NOTES
381.1	A 1/4" quick connect female air outlet shall be located on the driver's side pump panel. This fitting shall be connected to the chassis air brake system. A check valve shall be installed in the line to keep water from backing into the system. The air outlet shall include 25' of air pressure line that shall be housed in one of the body compartments. The air pressure line shall be supplied with a male coupling on one end and a tire gauge/adaptor on the other end.			
389.0	<b><u>CHASSIS SUPPLIED MIRROR</u></b>	YES	NO	EXCEPTIONS / NOTES
389.1	There shall be a supplied "look down" mirror installed on the front officer side of the cab.			
390.0	<b><u>PIVOT POINT AUTO LUBE LINES</u></b>	YES	NO	EXCEPTIONS / NOTES
390.1	There shall be lines run from the Vogel Auto Lube to the zerk fittings for the cab pivot points on the cab.			
391.0	<b><u>AUTO LUBE FILL EXTENSION ON PUMP PANEL</u></b>	YES	NO	EXCEPTIONS / NOTES
391.1	There shall be an Groeneveld Auto Lube fill extension provided on the pump panel. The fill extension shall allow for remote filling of the Auto Lube system reservoir.			
392.0	<b><u>HOOR METER</u></b>	YES	NO	EXCEPTIONS / NOTES
392.1	There shall be an hour meter provided and installed inside the center dash panel on the driver's side. The hour meter shall be activated only when the chassis Ignition has been engaged.			
393.0	<b><u>BATTERY CHARGER</u></b>	YES	NO	EXCEPTIONS / NOTES
393.1	A PRO Charging Professional Series PS3 battery conditioner shall be supplied by the OEM. This charger shall tie into the same chassis-supplied 20-amp electrical inlet connection as the chassis-supplied air pump. The Pro Charging BFG display shall be located on the external cab radius of the red paint area. The charger itself shall be located inside the PL1 compartment.			



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394.0	<b><u>12V KUSSMAUL USB DUAL PORTS</u></b>	YES	NO	EXCEPTIONS / NOTES
394.1	There shall be two (2) Kussmaul, model #0912195, 12V USB dual port, 4.8A, installed in the chassis cab. The outlet shall be battery direct and have a maximum of a 5-amp fuse provided with the power circuit.			
395.0	<b><u>12V ACCESSORY OUTLETS</u></b>	YES	NO	EXCEPTIONS / NOTES
395.1	There shall be two (2) 12-volt accessory outlets provided. Each outlet shall consist of one (1) hot and one (1) ground 14-gauge wire run from the batteries to the specified location. Each outlet shall be battery direct and have a minimum of a 20-amp fuse provided with the power circuit.			
396.0	<b><u>IPAD, IPAD MOUNTING BRACKET AND CHARGING</u></b>	YES	NO	EXCEPTIONS / NOTES
396.1	There shall be an IPAD, IPAD mounting bracket, charging cable and dedicated 12-volt outlet for the IPAD. The location for the mounting bracket and dedicated 12-volt outlet will be in the rear of the cab in the crew area and determined at pre-construction.			
397.0	<b><u>ENGINE TUNNEL TREAD PLATE SHELF/ELECTRICAL BOX</u></b>	YES	NO	EXCEPTIONS / NOTES
397.1	<p>One (1) aluminum tread plate shelf/electrical cabinet feature shall be installed on the rear of the engine tunnel. The component shall have a top mounting surface, rear-facing glove box holders, and storage pockets for (2) cups and (2) handheld radios. The rear upper face shall have room for USBs and Power Points to be mounted there.</p> <p>The lower portion will have a removable rear access plate that will utilize compression-style retention latches. Dimensions shall be 37.5" wide x 26.25" tall. The top surface shall be 13" deep and the lowest portion shall be around 4.25" deep. The exterior and interior shall be coated in gray bed liner material to match the chassis floor and cab interior.</p> <p>The following power lead-ins, shall be installed in the lower center portion of this component, about 610 inches up of the floor of the cab:</p> <ul style="list-style-type: none"> <li>• One (1) 10-gauge wire terminating at a (6) place fuse block that will be wired hot to the battery.</li> <li>• One (1) 10-gauge wire terminating at a (6) place fuse block that will be wired hot from the battery to an activation switch on the dash.</li> <li>• One (1) 10-gauge wire terminating at a (6) place fuse block that will be wired to the ignition switch.</li> </ul>			

<b>398.0</b>	<b><u>ELECTRICAL DISTRIBUTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>398.1</b>	<p>The following power lead-ins, shall be installed:</p> <ul style="list-style-type: none"> <li>• Receptacle, 120V, 520R Straight Blade, Duplex, Wired to Shoreline Outlet Location, Driver's Seat, Behind</li> <li>• Receptacle, 120V, 520R Straight Blade, Duplex, Wired to Shoreline Outlet Location, officer's Seat, Behind</li> <li>• Receptacle, 120V, 520R Straight Blade, Duplex, Wired to Shoreline</li> <li>• The receptacle shall be installed on the upper forward back wall of the PL1 compartment.</li> <li>• There shall be a chassis supplied (6) position fuse panel installed. Outlet Behind Driver's Seat.</li> </ul>			
<b>399.0</b>	<b><u>WATER TANK</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>399.1</b>	<p>Water Tank, UPF, 300 U.S. Gallons  Water Tank Mounting, UPF, Mid Mounts  Water Tank Drain, 1 1/2" Valve, Aerials  Water Tank Fill Tower, UPF, Black, Mid Mounts</p>			
<b>400.0</b>	<b><u>WATER TANK BAFFLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>400.1</b>	The water tank shall have tank baffles designed to provide maximum water flow and interlock with one another.			
<b>401.0</b>	<b><u>WATER TANK SUMP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>401.1</b>	One (1) sump shall be provided at the bottom of the water tank and an anti-swirl plate shall be located above the sump.			
<b>402.0</b>	<b><u>WATER TANK LEVEL GAUGES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>402.1</b>	There shall be two (2) weatherproof encapsulated water level gauges with (10) LED lights. The indicators shall monitor the water tank level and shall be mounted on the pump panel. The tank sensing probes shall be of a chemical-resistant PVC with stainless steel sensing port. The cover plates shall be aluminum subplate with outdoor exposure rated composite overlay. The indicators shall have black backgrounds with red graphics.			
<b>403.0</b>	<b><u>WATER TANK FILL CONNECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>403.1</b>	All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank and shall be capable of withstanding sustained fill rates of up to 1,000 GPM.			

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404.0	<b><u>WATER TANK LID</u></b>	YES	NO	EXCEPTIONS / NOTES
404.1	The tank lid shall be constructed of polypropylene and be designed to allow for individual removal and inspection if necessary.			
405.0	<b><u>4" WATER TANK OVERFLOW</u></b>	YES	NO	EXCEPTIONS / NOTES
405.1	The tank shall be equipped with a minimum of a 4" schedule 40 polypropylene overflow/ air vent pipe installed in the fill tower extending through the tank.			
406.0	<b><u>WATER TANK FILL TOWER</u></b>	YES	NO	EXCEPTIONS / NOTES
406.1	The tank shall have a combination vent and manual fill tower, marked "Water Fill", located at the driver's side of the tank.			
407.0	<b><u>WATER TANK MOUNTING</u></b>	YES	NO	EXCEPTIONS / NOTES
407.1	The water tank carrier shall be designed specifically for this apparatus.			
408.0	<b><u>WATER TANK DRAIN</u></b>	YES	NO	EXCEPTIONS / NOTES
408.1	A 1 1/2" drain valve shall be provided in the pump compartment to drain the water tank. The valve shall include a locking lever to prevent accidental draining of the water tank.			
409.0	<b><u>HOSE BED</u></b>	YES	NO	EXCEPTIONS / NOTES
409.1	<p>The hose bed shall be located towards the rear of the truck, behind the water tank. The hose bed shall be designed to carry 600ft. of 5in rubber hose. The inside of the hose bed shall be constructed of aluminum. The hose shall be accessible from the rear, and the opening shall be free of obstructions. A stainless-steel body trim piece shall be at the rear-bottom of the hose bed, to protect the chevron striping when deploying the hose. The interior walls of the hose bed shall be coated with the black bed liner material.</p> <p>The floor of the hose bed shall be constructed of plastic material to prevent the accumulation of water and to allow ventilation to aid in drying the hose. The flooring shall be fabricated of "T" beam protrusions in parallel connected with cross slats that are first mechanically bonded and then epoxied, forming a large sheet. The "T" sections shall be spaced apart to allow for drainage and ventilation.</p> <p>The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. The bright white coating shall be baked on.</p> <p>There shall be (2) lights with housings in the hose bed area to provide adequate lighting to meet the requirements of NFPA 1901. The lights will be activated when the parking brake is set. The hose bed loading lights shall be controlled by a switch located above the taillight bezel on the driver's side.</p>			

<b>410.0</b>	<b><u>HOSE BED RETENTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>410.1</b>	<p>There shall be one (1) extra wide black Velcro strap stretched across the front 24" of the hose bed. If this does not meet at the UL inspection another retention strap may need to be added and the department shall be notified.</p> <p>The webbing will remain on the rear as the primary retention method and shall be attached as needed per engineering design.</p> <p>A black webbing restraint shall be located on the end of the hose bed. The webbing shall be a two-piece design and one (1) side of each piece shall be connected using a footman loop. Each piece shall be attached to the other in the center of the hose bed using Velcro.</p>			
<b>411.0</b>	<b><u>ALUMINUM BODY CONSTRUCTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>411.1</b>	The apparatus body shall be fabricated from a minimum of 1/8" aluminum sheet. The total outside width of the apparatus body shall not exceed 100 inches. The width measurement of the sidewalls shall be made from the outside wall of the two opposite sides of the body.			
<b>411.2</b>	The complete apparatus body shall be fabricated utilizing the break and bend techniques in to form a strong, yet flexible, unibody structure. The body shall be constructed with holding fixtures to ensure proper dimensioning. Each apparatus body is specific in design to meet the unique requirements of the purchasing fire department.			
<b>411.3</b>	The main body compartments on each side, as well as the rear center compartment if applicable, shall contain a swinging out floor design. Each compartment shall be made to the most practical dimensions to provide maximum storage capacity for the fire department's equipment. The door opening threshold shall be positioned lower than the compartment floor permitting easy cleaning of the compartments.			
<b>411.4</b>	Continuous, solid welded seams shall be located at the upper front and upper rear corners of the apparatus body. The flooring of all lower, main body compartmentation shall also have solid weld seams. All door jams, on both the top and the bottom, shall be solid welded as well. Each main door jamb shall consist of a double jam design; this is comparable to a double-struck frame design, which provides superior strength and durability. All double door jams are to be welded together utilizing the plug weld technique. All remaining compartment walls shall be stitch welded.			

411.5	The compartment floors, specifically L1 and R1, shall have a minimum of two (2) 2" x 2" square tubes welded to the entire width of the compartment floor. The two (2) rear side compartments as well as the rear center compartment, if applicable, shall be welded to the rear deck support structure. Each lower, rear compartment shall be welded to the cross tubes providing strength and durability to the entire apparatus body.			
411.6	The body design shall include a "false wall" design in the lower portion of each lower, rear compartment. This "false wall" is required to allow for easy accessibility to the rear electrical components found in the rear taillight cluster area. On the upper area of the apparatus body, directly above the side compartment door openings, a header is to be fabricated from an aluminum sheet. This area shall be free of any body seams and shall be painted the same color as the apparatus body.			
411.7	The height of the header may vary depending on the following factors: apparatus design, lettering requirements, scene lights, and warning light requirements as well as various other options. A "J" channel shall be incorporated into the body design to provide a rain gutter to further assist in preventing excessive moisture from getting into the compartments.			
412.0	<b><u>SIDE COMPARTMENT DOORS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
412.1	Each compartment door handle shall be a stainless steel recessed "D" ring type handle. A safety latch with a striker plate shall be included with the door handle assembly.  The inner lap-type door panels shall be painted the primary body color.			
412.2	Hinged lap-type compartment doors shall be installed on each side body compartment. Each lap door shall be a double panel construction with the outer and inner panels fabricated of aluminum. Rubber molding shall be installed in the overlap area of the door to ensure a weatherproof seal and prevent water from collecting in the door sills. Weep holes shall be installed at the bottom of the doors to drain moisture from between the door panels. The compartment door shall have a polished stainless steel continuous hinge with a rubber seal installed between the hinge and the aluminum door to separate the dissimilar metals. The hinge pin shall be stainless steel with a minimum diameter of 1/4".			

412.3	Compartments with vertically hinged doors that are wider than 36" will require double doors. Each vertically hinged door shall be supplied with one spring-loaded door holder on the compartment door to hold the door in either the fully open or partially closed position. Each spring-loaded door holder shall close the door automatically when it is positioned past the center or return the door to the fully open position if the center point is not reached, and the door is released. On compartments having double doors, the secondary door shall have a latch mechanism to secure the door when the primary door is opened.			
412.4	Pressurized gas filled cylinders shall be furnished on the horizontally hinged lift-up compartment door. Any lift-up style door that is wider than 30" shall require two (2) cylinders. The cylinder(s) shall hold the door in the open position and assist in raising it. The gas filled cylinder(s) shall assist in closing the door automatically when the door is positioned over the center.			
413.0	<b><u>WALKWAYS AND OVERLAYS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
413.1	All exterior surfaces designated by the manufacturer as stepping, standing, or walking areas shall be overlaid with a tread plate to provide a slip-resistant surface, even when the surface is wet. All interior surfaces designated by the manufacturer as stepping, standing, or walking areas shall be slip resistant when the surface is dry. The degree of slip resistance shall be in accordance with NFPA 1901, current edition.			
413.2	Horizontal walkways shall have .080" aluminum tread plate overlays installed and vertical surfaces shall have .125" aluminum tread plate overlays. Overlays shall be installed that are totally insulated from the apparatus with nylon shoulder washers that extend into holes in the body. Stainless steel cap nuts shall be employed where bolt ends may damage equipment or cause injury. After the apparatus is painted and the overlays are reinstalled, they shall be additionally sealed at the edges with a caulking compound. The exterior top tread plate overlay shall be mounted flush with the outer edges of the apparatus body.			
413.3	Any designated horizontal standing or walking surface higher than 48" from the ground and not guarded by a railing, or structure at least 12" high shall have a "safety yellow line" marking the outside perimeter of the designated standing or walking surface area. Yellow reflective SCENE-dots shall be used to create the line along the outside edges of standing and walking surfaces. Steps and ladders shall not be required to have the yellow line.			

<b>414.0</b>	<b><u>STEPPING SURFACES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>414.1</b>	All steps shall have a surface area of at least 35 square inches and shall be able to withstand a load of at least 500 pounds. Steps shall be provided at any area that personnel may need to climb and shall be adequately lit.			
<b>415.0</b>	<b><u>WEATHERPROOF DOOR SWITCHES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>415.1</b>	<p>Because of the harsh environment and susceptibility to moisture on the fire ground, the fire apparatus compartment doors shall utilize weatherproof switches.</p> <p>The switches shall be used for activation of the compartment lights and to provide a signal to the door open circuit in the cab.</p>			
<b>416.0</b>	<b><u>DOOR HANDLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>416.1</b>	All ten (10) side compartment lap doors shall have Nonlocking door handles.			
<b>417.0</b>	<b><u>REAR COMPARTMENT DOOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>417.1</b>	<p>There shall be a compartment located at the rear of the apparatus.</p> <p>There shall be two (2) vertically hinged lap-type compartment doors installed on the compartment face.</p> <p>The lap doors shall be a single panel construction and fabricated of smooth aluminum and painted to match the body color. The edges of the door shall be formed to an inward angle for added rigidity. There shall be rubber molding installed in the overlap area of the door to ensure a weatherproof seal and prevent water from collecting in the door sill. The compartment door shall have a polished stainless steel continuous hinge with a rubber seal installed between the hinge and the aluminum door to separate the dissimilar metals. The hinge pin shall be stainless steel with a minimum diameter of 1/4". The compartment doors shall be positively latched using compression latches.</p> <p>There shall be two (2) pressurized gas filled cylinders furnished, one on each compartment door. The cylinders shall hold the doors in the open position and assist in opening them. The gas filled cylinders shall assist in closing the doors automatically when the doors are positioned over the center.</p> <p>The compartment shall be adequately lit for nighttime operations.</p>			



<b>418.0</b>	<b><u>LICENSE PLATE BRACKET</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>418.1</b>	A license plate bracket shall be mounted on the rear of the apparatus. A clear LED light shall be incorporated into the bracket.			
<b>419.0</b>	<b><u>DUNNAGE COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>419.1</b>	A dunnage compartment shall be located above the torque box. The dunnage compartment floor shall be constructed of a tread plate.			
<b>420.0</b>	<b><u>BODY COMPARTMENT LIGHTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>420.1</b>	<p>A total of twenty (20) LED compartment lights shall be installed in the body compartments.</p> <p>Lights shall be installed as follows in the following compartments:</p> <ul style="list-style-type: none"> <li>· (1) horizontally on the ceiling of SL1</li> <li>· (1) horizontally on the ceiling of PL1,</li> <li>· (2) in compartment L1,</li> <li>· (2) in compartment L2,</li> <li>· (2) in compartment L3,</li> <li>· (2) in compartment L4,</li> <li>· (1) horizontally on the ceiling of SR1,</li> <li>· (2) in compartment PR1,</li> <li>· (2) in compartment R1,</li> <li>· (2) in compartment R2,</li> <li>· (2) in compartment R3,</li> <li>· (1) in compartment R4.</li> </ul>			
<b>421.0</b>	<b><u>COMPARTMENT COATING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>421.1</b>	The interior of the body compartments shall be coated with a gray bed liner.			
<b>422.0</b>	<b><u>COMPARTMENT FLOORING TILES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>422.1</b>	Interlocking plastic squares shall be in all body compartments. The tiles shall be applied to all body compartment shelves, adjustable-height trays, floor mounted trays, and on compartment floors that do not contain floor mounted trays. No tiles shall be applied on compartment floors underneath floor mounted trays			
<b>423.0</b>	<b><u>COMPARTMENT AIR RELEASE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>423.1</b>	Each compartment shall be vented to help remove trapped air when closing the compartment door. The vent shall be a rubber gasket in the area of the outboard corners of the compartment.			
<b>424.0</b>	<b><u>COMPARTMENT DRAIN HOLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>424.1</b>	Each body compartment shall be equipped with drain holes to allow standing water to exit underneath the apparatus.			

<b>425.0</b>	<b><u>SILL PROTECTORS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>425.1</b>	An anodized aluminum angle sill protector shall be installed on the bottom sill area of the compartments with lap-style doors to aid in reducing paint damage from equipment. The sill protectors shall be attached using permanent bonding double-sided tape.			
<b>426.0</b>	<b><u>POLY BODY RUB RAILS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>426.1</b>	<p>Rub rails shall be installed beneath the compartment doors to protect the apparatus body from damage should the body be brushed or rubbed against another object. The rub rails shall be black textured marine HDPE material.</p> <p>The rub rails shall be installed on the body utilizing black poly spacers and secured with stainless steel bolts. The outside edge of the rub rails shall have chamfered ends to prevent snagging.</p>			
<b>427.0</b>	<b><u>PL1 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>427.1</b>	<p>There shall be a compartment ahead of the driver-side pump panel labeled PL1. Dimensions are as follows:</p> <p>Door Opening Height: 18" Door Opening Width: 28" Compartment Depth: 19"</p>			
<b>428.0</b>	<b><u>LEFT SIDE 1 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>428.1</b>	<p>Height 27" Width 58" Upper Depth 13" Lower Depth 13"</p> <p>Contents:</p> <ul style="list-style-type: none"> <li>• Horizontal Hinged Lap Door</li> <li>• One (1) Swing out aluminum tool board shall be in the standard height compartment.</li> <li>• There shall be a black nylon pulldown strap provided and attached to the door to aid in closing it.</li> </ul>			
<b>429.0</b>	<b><u>LEFT SIDE 2 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>429.1</b>	<p>Height 27" Width 58" Upper Depth 13" Lower Depth 13"</p> <p>Contents:</p> <ul style="list-style-type: none"> <li>• Horizontal Hinged Lap Door</li> <li>• Top Shelf (1), Adjustable, Aluminum,</li> <li>• There shall be a black nylon pulldown strap provided and attached to the door to aid in closing it.</li> </ul>			

<b>430.0</b>	<b><u>LEFT SIDE 3 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>430.1</b>	Height 59" Width 54" Upper Depth 25" Lower Depth 25"  Contents: <ul style="list-style-type: none"> <li>• Vertical Hinged Lap Door</li> <li>• Double Doors</li> <li>• (1) Adjustable, aluminum, shelf with a bed liner finish</li> <li>• One (1) full height, dual-faced, slide-out aluminum tool board shall be in the full depth compartment. The tool board will be bed liner coated.</li> </ul>			
<b>431.0</b>	<b><u>LEFT SIDE 4 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>431.1</b>	Height 39" Width 34" Upper Depth 21" Lower Depth 21"  Contents: <ul style="list-style-type: none"> <li>• Vertical Hinged Lap Door</li> <li>• Double Doors</li> <li>• (1) Adjustable, aluminum, full depth shelf with a bed liner coating</li> <li>• (1) Permanent, aluminum, full depth shelf matching the compartment's finish</li> </ul>			
<b>432.0</b>	<b><u>WEBBING RESTRAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>432.1</b>	The webbing shall be attached to the front edge of the fixed shelf. This shall be a dropdown style webbing section that shall attach to the adjustable shelf above the fixed shelf with Footman's Loops and "J" Hooks. The length of the webbing section can be determined after the shelves are set into the specified positions.			
<b>433.0</b>	<b><u>POLY BOXES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>433.1</b>	There shall be two (2) black poly boxes provided that shall fit the two storage spaces on the floor (Maximize sizes) beneath the fixed shelf. Handholds shall be in each of the boxes to fix gloved hands. There shall be 1" Bed liner finished angles installed on the floor to hold the boxes in place and keep them from contacting the insides of the compartment doors.			

<b>434.0</b>	<b><u>DRIVER'S SIDE REAR WHEEL WELL POSITION WL1</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>434.1</b>	A single extinguisher/water can compartment shall be installed in the forward portion of the rear wheel well area, on the driver's side. The compartment shall be large enough to hold an extinguisher/water can up to 9" in diameter, with sufficient space for the discharge tube. The compartment door, flange, and hinges shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal to protect the interior of the compartment. The storage compartment shall be a molded component that is assembled to the door and flange. The door shall have a brushed stainless steel finish.			
<b>435.0</b>	<b><u>DRIVER'S SIDE REAR WHEEL WELL POSITION WL2</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>435.1</b>	Two (2) single air bottle compartments shall be installed in the rear wheel well area, between the tandem axles. The compartment door, flange, and hinges shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal to protect the interior of the compartment. The storage compartment shall be a molded component that is assembled to the door and flange. The doors shall have a brushed stainless steel finish.			
<b>436.0</b>	<b><u>DRIVER'S SIDE REAR WHEEL WELL POSITION WL3</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>436.1</b>	<p>A wheel chock compartment shall be installed in the rearward portion of the rear wheel well area, on the driver's side. The compartment shall be capable of storing one wheel chock.</p> <p>The compartment door, flange, and hinges shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal to protect the interior of the compartment.</p> <p>The storage compartment shall be a molded component that is assembled to the door and flange. The door shall have a brushed stainless steel finish.</p>			

<b>437.0</b>	<b><u>PR1 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>437.1</b>	Height 41" Width 28" Upper Depth 19" Lower Depth 19"  Contents: <ul style="list-style-type: none"> <li>• Vertical Hinged Lap Door.</li> <li>• (1) Adjustable, aluminum, full depth shelf with a bed liner coating.</li> <li>• There shall be a black nylon pull-down strap attached to the door to aid in closing it.</li> </ul>			
<b>438.0</b>	<b><u>RIGHT SIDE 1 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>438.1</b>	Height 27" Width 58" Upper Depth 13" Lower Depth 13"  Contents: <ul style="list-style-type: none"> <li>• Horizontal hinged lap door</li> <li>• Top shelf shall be a shallow depth, adjustable, aluminum shelf with a bed liner coating.</li> <li>• There shall be a black nylon pulldown strap attached to the door to aid in closing it.</li> </ul>			
<b>439.0</b>	<b><u>RIGHT SIDE 2 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>439.1</b>	Height 27" Width 58" Upper Depth 13" Lower Depth 13"  Contents: <ul style="list-style-type: none"> <li>• Horizontal hinged lap door</li> <li>• Top compartment struts</li> <li>• (1) Adjustable, aluminum, shallow depth shelf with a bed liner coating.</li> <li>• There shall be a black nylon pulldown strap attached to the door to aid in closing it.</li> </ul>			

<b>440.0</b>	<b><u>RIGHT SIDE 3 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>440.1</b>	Height 59" Width 54" Upper Depth 25" Lower Depth 25"  Contents: <ul style="list-style-type: none"> <li>• Vertical hinged lap door</li> <li>• Double doors</li> <li>• (1) Adjustable, aluminum, full depth shelf with a bed liner coating</li> <li>• (2) Permanent, aluminum, full depth, shelves matching the compartment's finish</li> <li>• A bolt in vertical partition the height of the compartment.</li> </ul>			
<b>441.0</b>	<b><u>RIGHT SIDE 4 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>441.1</b>	Height 39" Width 13" Upper Depth 21" Lower Depth 21"  Contents: <ul style="list-style-type: none"> <li>• Vertical hinged lap door</li> </ul>			
<b>442.0</b>	<b><u>OFFICER'S SIDE REAR WHEEL WELL POSITION WR1 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>442.1</b>	A single extinguisher/water can compartment shall be installed in the forward portion of the rear wheel well area, on the officer's side. The compartment shall be large enough to hold an extinguisher/water can up to 9" in diameter, with sufficient space for the discharge tube. The compartment door, flange, and hinges shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal to protect the interior of the compartment. The storage compartment shall be a molded component that is assembled to the door and flange. The door shall have a brushed stainless steel finish.			
<b>443.0</b>	<b><u>OFFICER'S SIDE REAR WHEEL WELL POSITION WR2 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>443.1</b>	Two (2) single air bottle compartments shall be installed in the rear wheel well area, between the tandem axles. Each compartment door, flange, and hinges shall be constructed of stainless steel material. The doors shall have a rubber gasket to create a 100% seal to protect the interior of the compartment. The storage compartments shall be a molded component that is assembled to the doors and flanges. The doors shall have a brushed stainless steel finish.			

<b>444.0</b>	<b><u>OFFICER'S SIDE REAR WHEEL WELL POSITION WR3 COMPARTMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
	A wheel chock compartment shall be installed in the rearward portion of the rear wheel well area, on the officer's side. The compartment shall be capable of storing one wheel chock.			
<b>444.1</b>	The compartment door, flange, and hinges shall be constructed of stainless steel material. The door shall have a rubber gasket to create a 100% seal to protect the interior of the compartment. The storage compartment shall be a molded component that is assembled to the door and flange. The door shall have a brushed stainless steel finish.			
<b>445.0</b>	<b><u>FRONT STABILIZER COMPARTMENTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
	An upper compartment shall be located above the front stabilizers on both sides of the apparatus. The compartments shall be designated as SL1 (driver's side) and SR1 (officer's side). Each compartment shall be equipped with a double pan lap door and a chrome nonlocking D Ring door handle.			
<b>445.1</b>	<ul style="list-style-type: none"> <li>The inner lap-type door panels shall be painted the primary body color.</li> <li>The compartments above the front stabilizers shall be transverse.</li> <li>One (1) LED light shall be installed in each compartment. Each light shall be enclosed within a waterproof tube enclosure.</li> </ul>			
<b>446.0</b>	<b><u>SL1/SR1 PIKE POLE STORAGE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>446.1</b>	There shall be storage for two (2) pike poles on the upper rear wall. The tubes shall only be as long as the 57" booted area and there shall be no slots cut into the tubes.			
<b>447.0</b>	<b><u>TWO REAR TOW EYES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>447.1</b>	Two (2) tow eyes shall be installed at the rear of the apparatus above the rear step area. The tow eyes shall be bolted to a heavy-duty assembly that is welded to the torque box. The tow eyes shall have a 2 1/2" ID hole. The tow eyes shall be powder-coated red and shall match the body color as closely as possible.			
<b>448.0</b>	<b><u>RECEIVER TUBES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>448.1</b>	There shall be four (4) receiver tubes, (2) on each side. No electrical. No power shall be provided. Two (2) receivers with eyelets shall be provided.			



<b>449.0</b>	<b><u>REAR WHEEL WELLS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>449.1</b>	The fenders shall be integral with the body sides and compartments with a seamless appearance. The fenders shall be fitted with bolt-in removable full circular inner liners in the wheel well area for ease of cleaning and maintenance. The liners shall match the material used to build the body. Sufficient clearance shall be provided in the wheel well to allow the use of tire chains when the apparatus is fully loaded.			
<b>450.0</b>	<b><u>RUBBER FENDERETTES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>450.1</b>	Four (4) rubber fenderettes shall be installed at the outboard edge of the rear wheel well area, two (2) on each side. The fenderettes shall be bolted to the apparatus body using nylon washers to space them slightly away from the body to reduce the buildup of road grime.			
<b>451.0</b>	<b><u>LADDER DRIVER'S SIDE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>451.1</b>	<p>For access to the turntable, a turntable access ladder shall be furnished on the driver's side of the apparatus near the front area of the turntable. The ladder assembly shall be a pull-out-and-down design with a slight angle to allow for better access to the turntable. The ladder shall lock in the stored position with a "T" handle type locking device. The top step of the access ladder shall be a fold-down tread plate platform to allow for an easy transition from the ladder rungs to the turntable. When the ladder is in the down position the maximum height from the ground to the first step shall not exceed 24".</p> <p>The access ladder shall be connected to the door open warning circuit to warn the driver if it is not in the stored position. The steps shall be illuminated for nighttime operation with LED lighting. The lighting shall be enclosed within a tough waterproof Lexan tube enclosure and covered with an aluminum bezel for protection from impact and environmental elements; and shall be activated by the parking brake. To aid in ascending and descending the access steps, knurled aluminum handrails shall be provided on each side of the steps.</p> <p>The handrails on the steps will be aluminum, white back lit style.</p>			

<b>452.0</b>	<b><u>TURNTABLE ACCESS LADDER OFFICER'S SIDE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
	<p>For access to the turntable, a turntable access ladder shall be furnished on the officer's side of the apparatus near the front area of the turntable. The ladder assembly shall be a pull-out-and-down design with a slight angle to allow for better access to the turntable. The ladder shall lock in the stored position with a "T" handle type locking device. The top step of the access ladder shall be a fold-down tread plate platform to allow for an easy transition from the ladder rungs to the turntable. When the ladder is in the down position the maximum height from the ground to the first step shall not exceed 24".</p> <p>The access ladder shall be connected to the door open warning circuit to</p> <p><b>452.1</b> warn the driver if it is not in the stored position. The steps shall be illuminated for nighttime operation with LED lighting. The lighting shall be enclosed within a tough waterproof Lexan tube enclosure and covered with an aluminum bezel for protection from impact and environmental elements; and shall be enclosed within a tough waterproof Lexan tube enclosure and covered with an aluminum bezel for protection from impact and environmental elements; and shall be activated by the parking brake. To aid in ascending and descending the access steps, aluminum handrails shall be provided on each side of the steps.</p> <p>The handrails on the steps will be aluminum, white back lit style.</p>			
<b>453.0</b>	<b><u>PLATFORM ACCESS STEPS OFFICER'S SIDE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
	<p>For access to the platform, one set of steps shall be furnished on the officer's side of the apparatus at the rearward portion of the body. The steps shall be constructed of an aluminum grip strut.</p> <p><b>453.1</b> The bottom step shall be a swing-down type that shall allow ease of access to the top of the body, which shall allow easy access to the platform. The step surface shall be constructed of grip strut material. This step shall be connected to the door open warning circuit to warn the driver if left down.</p>			

453.2	The remaining steps shall have a maximum stepping height, which shall not exceed 18", except for the ground to the first step. Steps shall be illuminated for nighttime operation with LED lighting, actuated by the parking brake. To aid in ascending and descending the access steps, knurled aluminum handrails shall be provided on each side of the steps and one (1) on the body above the steps.			
454.0	<b><u>FRONT TREAD PLATE OVERLAYS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
454.1	A tread plate overlay shall be located on the front vertical areas of each side of the apparatus body. The overlays shall be located on the front of the body compartments.			
455.0	<b><u>STEP AND LIGHTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
455.1	One (1) Cast Products folding step shall be located on the front of the officer's side body compartments. The folding step shall have two large open slots to prevent the buildup of ice or mud and to provide a handhold when necessary. The step shall have a surface area of at least 35 square inches and shall be able to withstand a load of 500 pounds. The step shall be adequately lit with LED lighting. One (1) light shall be located above the step.			
456.0	<b><u>BACKLIT HANDRAILS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
456.1	All handrails, unless otherwise stated, shall be constructed of knurled aluminum with white-colored LED backlighting. All railing shields and brackets shall be chrome plated and shall be bolted to the body with stainless steel bolts. The lower bracket on all vertical handrails shall have a drain hole drilled in it at the lowest point.  A knurled aluminum handrail shall be installed at a 45-degree angle on the front of the body on the officer's side.			

<b>457.0</b>	<b><u>LADDER STORAGE, IN TORQUE BOX</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>457.1</b>	<ul style="list-style-type: none"> <li>One (1) DuoSafety, model 585A, 10' aluminum folding ladder.</li> <li>One (1) DuoSafety, model 701, 10' aluminum "Fresno" ladder.</li> <li>One (1) Little Giant "Defender", (15187882). (Stored on the cab roof).</li> <li>Two (2) DuoSafety, model 875DR, 16' aluminum roof ladders with dual folding roof hooks</li> <li>Two (2) DuoSafety, model 1200A, 28' aluminum two-section extension ladders</li> <li>One (1), Duo-Safety, 40' Aluminum Three Section Extension (No Poles), 1525-NP</li> <li>Brackets with Straps for the Little Giant Ladder Stored on Cab Roof</li> </ul>			
<b>458.0</b>	<b><u>PIKE POLE STORAGE, IN UPPER PORTION OF TORQUE BOX, (6) TUBES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>458.1</b>	<p>Two (2) Fire Hooks Unlimited, model Right Hand6, 6' pike poles with chisel style ends shall be provided.</p> <p>One (1) Fire Hooks Unlimited, model NYF8, 8' fiberglass (ash core) pike pole with a National Hook and butt-style end shall be provided.</p> <p>One (1) Fire Hooks Unlimited, model NYF12, 12' fiberglass (ash core) pike pole with a National Hook and butt-style end shall be provided.</p>			
<b>459.0</b>	<b><u>WHEEL CHOCKS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>459.1</b>	Two (2) pairs of Zico, model SAC44, wheel chocks shall be provided with the apparatus.			
<b>460.0</b>	<b><u>INDEPENDENT ALUMINUM PUMP MODULE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>460.1</b>	The pump module shall be fabricated from an aluminum sheet. The module shall be fabricated as an individual unit independent from the body.			
<b>461.0</b>	<b><u>PUMP COMPARTMENT LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>461.1</b>	Two (2) LED lights shall be installed in the pump compartment.			

<b>462.0</b>	<b><u>DRIVER'S SIDE RUNNING BOARD</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>462.1</b>	<p>An integral running board shall be installed on the driver's side of the pump module. The running board shall be constructed of aluminum and overlaid with an anti-slip tread plate.</p> <p>The outside edge of the running board shall be covered by a rub rail and shall be flush with the rub rail that is installed on the body to maintain a uniform appearance.</p>			
<b>463.0</b>	<b><u>OFFICER'S SIDE RUNNING BOARD / HOSE WELL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>463.1</b>	<p>An integral running board shall be installed on the officer's side of the pump module. The running board shall be constructed of aluminum and overlaid with an Anti-slip tread plate. The outside edge of the running board shall be covered by a rub rail and shall be flush with the rub rail that is installed on the body to maintain a uniform appearance.</p> <p>There shall be a floating style hose well in the running board. The dimensions shall be 26" long x 9.25" wide x 12" deep. There shall be PAC straps provided for retention.</p>			
<b>464.0</b>	<b><u>PULLOUT PLATFORM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>464.1</b>	<p>One (1) Innovative Industries pullout platform shall be located on the driver's side of the pump module. The top surface of the platform shall be constructed of aluminum serrated bar grating for ease of maintenance and to provide a slip-resistant surface for the operator. The platform shall lock in both the retracted and the extended position. The pullout platform shall be capable of supporting a maximum of 500 pounds and shall be wired to the door ajar circuit.</p> <p>The pullout platform's roller assembly shall have a powder coat finish for added corrosion protection.</p>			
<b>465.0</b>	<b><u>TOP PUMP ACCESS PANELS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>465.1</b>	<p>A tread plate access panel, split in the center, shall be provided on the top of the pump compartment. The panel shall be of the single pan design and shall be positively latched in the closed position utilizing (8) compression latches. The panel shall be split in the center allowing access from either side of the pump compartment. This area is above the pump compartment, behind the turntable, allowing service of the pump and components.</p>			

<b>466.0</b>	<b><u>CONTROL PANEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>466.1</b>	The driver's side of the pump enclosure shall be divided into two sections. The lower section shall be where all valve controls, the primer control, the discharge relief valve controls (pilot valve), and other mechanical controls are located. This surface shall be referred to as the "control panel". All valve controls shall be the self-locking type, activated by either direct control or with a direct linkage utilizing friction locking bell cranks and universal ball swivels. The primary valve handles shall have color-coded tags installed in a recessed area to clearly denote the purpose of each control.			
<b>467.0</b>	<b><u>INSTRUMENT PANEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>467.1</b>	The surface up above the control panel shall contain all instruments, gauges, test fittings, and optional controls. This surface shall be referred to as the "instrument panel". The instrument panel shall be independent and hinged and latched so that it may be opened. All instruments, gauges, and other equipment shall be installed with sufficient slack in any cabling, tubing, or plumbing to allow the panel to Swivel to the fully open position.  The instrument and gauge panel shall be horizontally hinged "swinging down" to provide access for service.			
<b>468.0</b>	<b><u>OFFICER'S SIDE PUMP PANEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>468.1</b>	A single panel shall be installed on the officer's side of the pump enclosure. This shall be the area where any officer's side discharges, inlets, steamers, and other pump associated equipment are located. This panel shall be easily removable and held in place with quick-release push latches. It shall be fully removable for pump and plumbing access without the need to use hand tools. Any electrical equipment that may be installed shall be equipped with connectors so they may be easily separated from the opening created when the below-described front access panel is removed.			
<b>469.0</b>	<b><u>PANEL SURFACES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>469.1</b>	The control panel, instrument panel, and officer's side pump panel shall be fabricated from a minimum of 16-gauge stainless steel with brushed finish.			

<b>470.0</b>	<b><u>GARNISH RING BEZEL ASSEMBLIES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>470.1</b>	Intake and/or discharge garnish rings shall be installed on the apparatus with mounting bolts. These bezel assemblies shall be used to identify intake and/or discharge ports with color and verbiage. The garnish rings shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies shall feature a chrome-plated panel mount bezel with durable UV-resistant polycarbonate inserts. These UV-resistant polycarbonate graphic inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels meet UL969 and NFPA standards.			
<b>471.0</b>	<b><u>VERBIAGE TAG BEZEL ASSEMBLIES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>471.1</b>	Verbiage tag bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies shall include a chrome-plated panel mount bezel with durable easy to read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV-resistant polycarbonate verbiages and color inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall meet UL969 and NFPA standards.			
<b>472.0</b>	<b><u>SAFETY MESSAGE BEZEL ASSEMBLIES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>472.1</b>	Safety message bezels shall be installed. The bezel assemblies will be used to identify, instruct, or warn the operators. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The safety message bezel assemblies shall include a chrome-plated panel mount bezel with durable easy to read UV resistant polycarbonate inserts featuring ANSI safety standard graphics or custom graphics. These UV-resistant polycarbonate graphic inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the graphic insert labels and bezel shall meet UL969 and NFPA standards.			



<b>473.0</b>	<b><u>MIDSHIP MOUNT FIRE PUMP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>473.1</b>	The pump shall be a Waterous CSUC20 2000 U.S. GPM fire pump. The pump shall be a single-stage centrifugal class "A" rated fire pump, designed specifically for the fire service. The pump body shall be cast as two (2) horizontally split pieces. The body shall be made of high tensile, close grained gray iron with a minimum tensile strength of 40,000 PSI.			
<b>474.0</b>	<b><u>FLAME-PLATED IMPELLER HUBS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>474.1</b>	The pump impellers shall be bronze, specifically designed for the fire service, and accurately balanced for vibration-free running. The stripping edges shall be located on opposite sides of the impellers to reduce shaft deflection. The impeller shaft shall be stainless steel, accurately ground to size, and supported at each end by oil or grease lubricated antifriction ball bearings for rigid, precise support. The bearings used on the impeller shaft shall be automotive-type bearings, easily cross-referenced and readily available at normal parts or bearing stores. The impeller hubs shall be flame plated with tungsten carbide to hardness approximately twice that of tool steel to assure maximum pump life and efficiency. During the flame plating process, the base metal shall not be allowed to exceed a temperature of 300 degrees Fahrenheit to prevent altering the metallurgical properties of the impeller material.			
<b>475.0</b>	<b><u>IMPELLER WEAR RINGS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>475.1</b>	The pump shall be equipped with replaceable bronze wear rings for increased pump life and minimum maintenance cost. The wear rings shall be designed to fit into a groove in the face of the impeller hubs forming a labyrinth that, as the clearance increases with age, directs water from the discharge side in several directions eventually exiting outward, away from the eye of the impeller hub.			
<b>476.0</b>	<b><u>LUBRICATION SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>476.1</b>	An internal lubrication system shall deliver lubricant directly to the drive chain. This unique design shall eliminate the need for an external lubrication pump and auxiliary cooling. Oil shall be supplied with the lubrication system.			

<b>477.0</b>	<b><u>PUMP TRANSMISSION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>477.1</b>	The pump shall have a Waterous model C20 series transmission. The housing of the transmission shall be constructed of high strength, three piece, horizontally split aluminum. The drive line shafts shall be made from alloy steel forgings, hardened, and ground to a size 2.350-inch 46 tooth involute spline. The drive and driven sprockets shall be made of steel and shall be hardened and have ground bores. The drive chain shall be a Morse HV high strength involute form chain. Bearings shall be a deep groove, anti friction ball bearings and shall give support and proper alignment with the impeller shaft assembly. Bearings shall be oil splash lubricated, completely separated from the water being pumped, and protected by a O ring and oil seal. An internal lubrication system shall deliver lubricant directly to the drive chain. This unique design eliminates the need for an external lubrication pump and auxiliary cooling. The pump and transmission shall be easily separable. A two-piece shaft shall be splined allowing for individual repair of either the pump or transmission, to keep downtime to a minimum. All drive line components shall have a torque rating equal to or greater than the final net engine torque.			
<b>478.0</b>	<b><u>MECHANICAL SEALS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>478.1</b>	The pump shall be equipped with self-adjusting, maintenance-free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manner such that they shall remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.			
<b>479.0</b>	<b><u>ANODES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>479.1</b>	Four (4) Waterous Magnesium anodes shall be provided with the fire pump. The anodes shall be installed as follows: <ul style="list-style-type: none"> <li>Two (2) on the intake side of the pump</li> <li>Two (2) in the discharge manifold of the fire pump.</li> </ul>			
<b>480.0</b>	<b><u>PUMP RATING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>480.1</b>	The pump shall be rated at 1500 gallons per minute			

<b>481.0</b>	<b><u>FIRE PUMP MOUNTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>481.1</b>	<p>The fire pump shall be mounted within a separate body module that is not directly connected to the apparatus body.</p> <p>The pump shall be frame mounted; therefore minimizing the likelihood of the pump casing cracking should the apparatus be involved in a collision.</p> <p>The pump module shall be mounted to the frame in a minimum of four (4) locations and shall be reinforced appropriately to carry the expected load for the life of the apparatus.</p>			
<b>482.0</b>	<b><u>PUMP SHIFT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>482.1</b>	<p>The pump shift shall be supplied and installed by the chassis manufacturer.</p> <p>The pump system shift indicator lights in the chassis cab shall be supplied and installed by the chassis manufacturer.</p> <p>One (1) green pump system shift indicator light shall be located on the operator's panel. This light shall only become engaged when the chassis parking brake has been set and when the pump and the chassis transmissions have been completely shifted into the correct gears. The light shall be located adjacent to the throttle control and shall be labeled "Warning: Do Not Open Throttle Unless Light Is On".</p>			
<b>483.0</b>	<b><u>PRESSURE GOVERNOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>483.1</b>	<p>A Fire Research Pump Boss 400 pressure governor and monitoring display system shall be installed. The system shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8" wide by 1 1/2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red control module. Inputs for monitored information shall be a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus or engine specific wiring. Inputs to the control module from the pump discharge and intake pressure sensors shall be electrical.</p>			

483.2	<p>The following continuous displays shall be provided:</p> <ul style="list-style-type: none"> <li>• Engine RPM; shown with four daylight bright LED digits more than 1/2" high</li> <li>• Check engine and stop engine warning LEDs</li> <li>• Oil pressure; shown on a dual color (green/red) LED bar graph display</li> <li>• Engine coolant temperature; shown on a dual color (green/red) LED bar graph display</li> <li>• Transmission Temperature: shown on a dual color (green/red) LED bar graph display</li> <li>• Battery voltage; shown on a dual color (green/red) LED bar graph display</li> <li>• Pressure and RPM operating mode LEDs</li> <li>• Pressure / RPM setting; shown on a dot matrix message display</li> <li>• Throttle ready LED</li> </ul> <p>The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. The LED intensity shall be automatically adjusted for day and nighttime operation.</p> <p>The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. The kit shall monitor inputs and support audible and visual warning alarms for the following conditions:</p> <ul style="list-style-type: none"> <li>• High Battery Voltage</li> <li>• Low Battery Voltage (Engine O)</li> <li>• Low Battery Voltage (Engine Running)</li> <li>• High Transmission Temperature</li> <li>• Low Engine Oil Pressure</li> <li>• High Engine Coolant Temperature</li> <li>• Out of Water (visual alarm only)</li> <li>• No Engine Response (visual alarm only)</li> </ul> <p>The program features shall be accessed via pushbuttons located on the front of the control module. A USB port shall be located at the rear of the control module to upload future firmware enhancements.</p> <p>The governor shall operate in two control modes, pressure, and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle-ready LED shall light when the interlock Signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode, the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 PSI. Other safety features shall</p>			
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### Section Three Specifications

484.0	<b><u>PRIMING PUMP</u></b>	YES	NO	EXCEPTIONS / NOTES
484.1	The priming pump shall be a compressed air powered, high efficiency, multistage, venturi-based Air Prime System. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A pressure protection valve shall be installed with the priming pump. A single panel mounted control shall activate the priming pump and open the priming valve to the pump.			
485.0	<b><u>MASTER DRAIN VALVE</u></b>	YES	NO	EXCEPTIONS / NOTES
485.1	A manifold drain valve assembly shall be supplied. This drain shall provide the capability to drain the entire pump by turning a single control. The valve assembly shall consist of a stainless-steel plate and shaft in a bronze body with multiple ports. The drain valve control shall be mounted on the driver's side pump panel and labeled "Master Drain".			
486.0	<b><u>WATEROUS OVERHEAT PROTECTION MANAGER WITH INDICATOR LIGHTS</u></b>	YES	NO	EXCEPTIONS / NOTES
486.1	A Waterous Overheat Protection Manager (OPM) shall be installed on the pump. The relief valve shall automatically relieve water from the pump when the temperature of the pump water exceeds 140° F. In addition, a warning light on the pump panel shall be triggered by a thermal Switch when the water in the pump reaches 180° F. The warning light acts as an additional protection device if the temperature inside the pump keeps rising although the valve is open. The valve shall automatically reset after activation.			
487.0	<b><u>PUMP MANUALS</u></b>	YES	NO	EXCEPTIONS / NOTES
487.1	Two (2) Pump Operation and Maintenance manuals shall be provided in a digital format with the apparatus.			
488.0	<b><u>PAINT PUMP WATEROUS RED/PAINT INTAKES PRIMARY BODY COLOR</u></b>	YES	NO	EXCEPTIONS / NOTES
488.1	<p>The pump body shall be painted with AkzoNobel High Solids polyurethane paint. The paint color shall be Waterous Red. The pump enclosure shall be painted the same color as the apparatus body.</p> <p>The main intake(s) and auxiliary intake valves shall be painted with AkzoNobel High Solids polyurethane paint. The paint color shall be the same as the apparatus body.</p>			

489.0	<b><u>PUMP AND ENGINE COOLING SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
489.1	<p>There shall be a pump and engine cooling system provided on the apparatus. The cooling system shall keep the engine cool when running for long periods and the pump cool during long periods of pumping when water is not being discharged. The cooling system shall also be set up in a way that the cooling system lines can be easily drained through the master pump drain.</p> <p>The cooling system lines shall consist of high-pressure, high temperature 3/4" (inside diameter) abraded rubber hose. The engine cooling lines shall be installed with one (1) line going from the discharge side of the water pump through, 3/4" inline quarter turn ball valve assembly and continuing to the chassis heat exchanger. The return line from the heat exchanger shall then run into the suction side of the pump. The pump cooling lines shall be installed with one (1) line going from the discharge side of the water pump through a 3/4" inline quarter turn ball valve assembly up to the water tank. At the water tank, the pump cooling line shall be plumbed into a 3/4" check valve on the "Tank Fill" valve. The check valve shall prevent tank water from back flowing into the pump when the cooling system is not in use. A return line from the water tank shall be plumbed into the water pump.</p> <p>The engine cooling system valve shall be controlled on the operator's panel, and shall be clearly labeled, "Engine Cooler".</p> <p>The pump cooling system valve shall be controlled on the operator's panel, and shall be clearly labeled, "Pump Cooler".</p>			

<b>490.0</b>	<b><u>PLUMBING MANIFOLD</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>490.1</b>	<p>The plumbing manifold shall consist of the inlet side manifold and the discharge side manifold.</p> <p>The inlet side of the plumbing manifold shall utilize schedule 10, 304-grade stainless steel tubing and preformed elbows for inlets that are larger than 3". Side auxiliary inlets that are 3" or smaller shall utilize schedule 40, 304-grade stainless steel threaded tubing and preformed elbows. The inlet manifold shall thread into the pump auxiliary inlet ports and each inlet valve shall thread onto the inlet manifold.</p> <p>The discharge side of the plumbing manifold shall utilize schedule 40, 304-grade stainless steel tubing and elbows to ensure the quality of the manifold where welds are required. The discharge manifold shall connect to the pump discharge ports using 1/2" stainless steel flanges that shall be machined to seat an O ring to ensure a leakproof seal. Each discharge shall derive from a port on the manifold assembly connected to a discharge valve with 1/2" 304-grade stainless steel flanges. Discharges that terminate in a location other than the pump module (i.e., rear discharges) that do not require welding shall utilize a combination of high-pressure flex hose and schedule 10, 304-grade stainless steel tubing to allow flexibility between the body and the pump module.</p>			
<b>491.0</b>	<b><u>DISCHARGE GAUGES 2 1/2" 0-400 PSI</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>491.1</b>	<p>The discharge gauges on the apparatus shall be 2 1/2" diameter pressure gauges. The gauges shall have a one-piece case that integrates the valve stem connection, movement support, and bourdon tube support into a single unit that eliminates distortion and leakage. Clear scratch-resistant molded lenses shall be used to ensure distortion free viewing and they shall be sealed to the gauge by being trapped together with a profile gasket by a crimped stainless-steel bezel. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from 40° F to +160° F.</p>			



491.2	<p>The gauges shall exceed ASME B40.100 Grade B requirements with an accuracy of +/- 1.5% full scale and include a size-appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy. Highly polished stainless-steel bezels shall be provided to prevent corrosion and protect lenses and gauge cases. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.</p> <p>The gauges shall display a range from 0 to 400 PSI.</p>			
492.0	<b>MASTER PRESSURE CENTER ASSEMBLY</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
492.1	<p>The master gauges shall be installed on the pump panel no more than 6 inches apart in an integrated master pressure assembly that includes the two (2) master gauges and the test port manifold.</p> <p>The master intake and master discharge gauges shall be 4" diameter pressure gauges. Each gauge shall have a Nylon case that integrates the valve stem connection, movement support, and bourdon tube support into a single unit that eliminates distortion and leakage. A clear scratch-resistant molded lens shall be used to ensure distortion free viewing and it shall be sealed to the gauge by being trapped together with a profile gasket by a crimped stainless-steel bezel. The gauge shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation, and ensure proper operation from 40° F to +160° F.</p> <p>Each gauge shall exceed ASME B40.100 Grade B requirements with an accuracy of +/- 1% full scale and include a size-appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy. A highly polished stainless-steel bezel shall be provided to prevent corrosion and protect the lens and gauge case.</p>			
492.2	<p>The two (2) master gauges shall be installed into a decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome-plated plugs.</p>			

492.3	The gauge on the left shall be the master pump intake gauge and display a range from 30 to 400 PSI with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 PSI with burgundy graphics on a white background.			
493.0	<b><u>HARDWARE BRAND</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
493.1	The Non-Storz discharge and intake fittings provided on this apparatus shall be South Park Corp. Brand. The adapter/cap/plug fittings shall be manufactured from high-quality brass that shall be polished to remove manufacturing irregularities with a chrome finish applied to the polished surface. The Storz discharge and intake fittings provided on this apparatus shall be Task Force Tips Brand. For corrosion resistance, the adapter shall be constructed of hard coat anodized aluminum alloy and include a polymer bearing ring.  The auxiliary intake(s) shall terminate with NH Swivels, and the discharges shall terminate with male NH threads.			
494.0	<b><u>DISCHARGE, PRECONNECT, AND INTAKE DRAINS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
494.1	A 3/4" quarter turn drain valve shall be included on each discharge, gated intake, and steamer valve (if applicable). A side stem, long stroke chrome plated lift handle shall be provided on the drain valve to facilitate use with a gloved hand. The drain valve shall have a verbiage tag that angles upward so that it can easily be seen and read by the operator before opening. The drain valve shall be located just above the running board and below the pump panel to reduce clutter in the pump panel area. The drain valve shall be connected to the valve with a flexible hose that is routed in such a manner as to assure complete drainage to below the apparatus. A matching color-coded bezel shall be included.			
495.0	<b><u>AUTOMATIC DRAINS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
495.1	A Class 1 automatic drain shall be installed on the deluge valve (if applicable). The drains shall also be in low laying areas (i.e., front discharge) The drains will open whenever the pressure in the line drops below 6 PSI.			
496.0	<b><u>AIR HORN ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
496.1	One (1) air horn button shall be provided on the driver's side pump panel. The button shall be red in color and include a label reading "AIR HORN".			

<b>497.0</b>	<b><u>TANK/PUMP PUMPING LABELS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>497.1</b>	Controllers shall have the OEM Standard label package unless stated otherwise. The PumpToTank Fill shall be labeled "TANK FILL" and shall have a light blue label color. The TankToPump shall be labeled "TANK TO PUMP" The labels shall be color coded in accordance with NFPA 1901, current edition compliance.			
<b>498.0</b>	<b><u>2" TANK FILL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>498.1</b>	<p>A 2" tank fill shall be plumbed from the pump to the tank. Installation shall be completed with a 2" rubber hose and stainless-steel hose couplings.</p> <p>An Akron Brass, model 8620, 2" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Swinging out of the waterway for maintenance by the removal of six bolts. The valve shall carry a ten (10) year warranty by the valve manufacturer.</p> <p>The valve shall be actuated by an electric actuator installed directly on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilizes an electric controller with a current limiting design.</p>			
<b>498.2</b>	The electric actuator shall be controlled by an Akron Brass, model 9333 Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open, and close as well as an optional one (1) touch full open feature to operate the actuator. Two (2) additional buttons shall be available to be used for preset selection, preset activation, and menu navigation. The controller shall have up to three (3) preset locations that can be user set and easily recalled upon each use. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall provide position indication through a full-color backlit LCD. The display shall be a full-color LCD with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit shall carry the manufacturer's warranty.			

499.0	<b>3" TANKTOPUMP</b>	YES	NO	EXCEPTIONS / NOTES
499.1	<p>A 3" tank-to-pump shall be plumbed with a flexible hose from the tank to the suction side of the pump. An Akron Brass, model 8630, 3" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States.</p> <p>The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilizes an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an Akron Brass, model 9333 Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close as well as an optional one (1) touch full open feature to operate the actuator. Two (2) additional buttons shall be available to be used for preset selection, preset activation, and menu navigation. The controller shall have up to three (3) preset locations that can be user set and easily recalled upon each use. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall provide position indication through a full-color backlit LCD. The display shall be a full-color LCD with a backlight. It shall have a manual adjustment of the brightness as well as an auto--dimming option. The unit shall carry the manufacturer's warranty.</p> <p>A check valve shall be between the pump suction and the booster tank valve. The check valve shall eliminate back flow into the water tank when the pump is connected to a pressurized source.</p>			

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500.0	<b><u>6" DRIVER SIDE MAIN INTAKE</u></b>	YES	NO	EXCEPTIONS / NOTES
500.1	There shall be a 6" main intake located on the driver's side of the pump module. The suction fittings shall include a removable diecast screen to provide cathodic protection for the pump thus reducing corrosion. A short steamer barrel shall be installed to accommodate an intake valve without exceeding the legal overall body width. The intake shall terminate the MNST thread.			
501.0	<b><u>REMOVABLE LOWER PANEL</u></b>	YES	NO	EXCEPTIONS / NOTES
501.1	<p>The lower portion of the panel shall be a removable stainless-steel access with compression latches.</p> <p>Butterfly Valve, Side Main Intake, 6" Manual, Waterous Monarch Bleeder Valve. The valve shall be in accordance with NFPA 1901, current edition, for opening and closing speed. The valve shall be used to bleed off air or water in accordance with NFPA 1901, current edition</p> <p>Intake Relief Valve, Main Intake, Elkhart, Factory Preset</p> <p>Elbow (30 Deg.) 6" FNH (Long Handle) x 5" Storz (SKE5T6L) Storz Cap (CC507), Kocheck, Powder Coat</p>			
502.0	<b><u>AUXILIARY INTAKE, DRIVER'S SIDE, 2 1/2"</u></b>	YES	NO	EXCEPTIONS / NOTES
502.1	Valve, 2 1/2", Manual, Stainless Ball, TSC Handle NH 2 1/2", South Park, HPC3008AC			
503.0	<b><u>MAIN INTAKE, OFFICER SIDE, 6"</u></b>	YES	NO	EXCEPTIONS / NOTES
503.1	<p>Butterfly Valve, Side Main Intake, 6" Manual, Waterous Monarch Bleeder Valve, Inn. Controls</p> <p>The valve shall be in accordance with NFPA 1901, current edition, for opening and closing speed.</p> <p>Intake Relief Valve, Main Intake, Elkhart, Factory Preset</p> <p>The valve shall be used to bleed off air or water in accordance with NFPA 1901, current edition.</p> <p>Elbow (30 Deg.) 6" FNH (Long Handle) x 5" Storz (SKE5T6L) Storz Cap (CC507), Kocheck, Powder Coat</p>			
504.0	<b><u>AUXILIARY INTAKE, OFFICER'S SIDE, 2 1/2"</u></b>	YES	NO	EXCEPTIONS / NOTES
504.1	Valve, 2 1/2", Akron, Manual, 8825, Stainless Ball, TSC Handle Plug, NH, 2 1/2", South Park, HPC3008AC			

505.0	<b><u>DISCHARGE, DRIVER'S SIDE, 2 1/2", NST (250 GPM NFPA RATED) VALVE</u></b>	YES	NO	EXCEPTIONS / NOTES
505.1	<p>An Akron Brass, model 8625, 2 1/2" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Switching out of the waterway for maintenance by the removal of six bolts. Shall carry manufacturer's warranty.</p> <p>The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilizes an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an Akron Brass, model 9327, Mini Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close. The unit shall carry the manufacturer's warranty.</p> <p>Pressure Gauge, Inn. Controls, 2 1/2", Liquid Filled PSI 0-400 Elbow (30 Deg.) 2 1/2" FNH x 2 1/2" MNH NH Cap, Chrome</p>			
506.0	<b><u>DISCHARGE, DRIVER'S SIDE, 2 1/2", NST (250 GPM NFPA RATED) VALVE</u></b>	YES	NO	EXCEPTIONS / NOTES
506.1	<p>A 2 1/2" discharge with 2 1/2" plumbing shall be located on the driver's side of the pump compartment. The discharge shall terminate with a male NH thread.</p> <p>An Akron Brass, model 8625, 2 1/2" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Switching out of the waterway for maintenance by the removal of six bolts. Shall carry manufacturer's warranty.</p>			

506.2	<p>The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilizes an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an Akron Brass, model 9327, Mini Navigator Pro electric valve controller.</p> <p>The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close. The unit shall carry the manufacturer's warranty.</p> <p>Pressure Gauge, 2 1/2", Liquid Filled PSI 0-400 Elbow (45 Deg.) 2 1/2" FNH x 2 1/2" MNH Adapter, 2 1/2" FNH x 1 1/2" MNH NH Cap chrome</p>			
507.0	<b><u>DISCHARGE, OFFICER'S SIDE, 2 1/2", NST (250 GPM NFPA RATED) VALVE</u></b>	YES	NO	EXCEPTIONS / NOTES
507.1	<p>An Akron Brass, model 8625, 3" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Switching out of the waterway for maintenance by the removal of six bolts. Shall carry manufacturer's warranty.</p> <p>The valve shall be actuated by an electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilizes an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an Akron Brass, model 9327, Mini Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close. Shall carry manufacturer's warranty.</p> <p>Pressure Gauge, Inn. Controls, 2 1/2", Liquid Filled PSI 0-400 Elbow (30 Deg.) 2 1/2" FNH x 2 1/2" MNH NH Cap Chrome</p>			



508.0	4" OFFICER'S SIDE DISCHARGE	YES	NO	EXCEPTIONS / NOTES
508.1	<p>A 4" large diameter discharge, with 4" plumbing, shall be located on the officer's side of the pump compartment. The discharge shall terminate with a male NH thread. Valve, 3", Akron, Electric, 8630, Stainless Ball, 9327 Mini Navigator Pro Controller (Valve Only)</p> <p>An Akron Brass, model 8630, 3" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States. The valve shall carry the manufacturer's warranty.</p> <p>The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilize an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an Akron Brass, model 9327, Mini Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close. The unit shall provide position indication through a full-color backlit LCD. The display shall be a full-color LCD with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit shall carry the manufacturer's warranty.</p> <p>The discharge shall have a 2 1/2" glass filled nylon case gauge with a bezel and a display range from 0 to 400 PSI. The gauge shall have a black dial graphic and pointer.</p> <p>There shall be one (1) Kocheck model SKE54RP18, 4" Female NH Swivel rocker lug x 5" Storz 30° elbow adapter provided. The adapter shall be lightweight aluminum with a powder coat finish.</p> <p>There shall be one (1) Kocheck model CC507, 5" Storz blind cap with the chain provided. The cap shall have a powder coat finish.</p>			

509.0	<b><u>CROSSLAY CONFIGURATION</u></b>	YES	NO	EXCEPTIONS / NOTES
509.1	<p>The pre-connect hose beds shall be sized to accommodate the following hose load:</p> <p>Two (2) 1 1/2" and one (1) 2 1/2" crosslay pre-connects shall be located above the front of the body. A high-pressure flex hose with stainless steel couplings shall be used in the plumbing. A 90-degree Swivel elbow shall be utilized to keep the hose from kinking when pulled from either side of the apparatus. The Swivel for each crosslay shall be located outboard for ease of making connections while changing the hose.</p> <p>There shall be (2) 9" LED lights with housings in the crosslay area to provide adequate lighting to meet requirements. The lights will be activated when the parking brake is set.</p> <p>The interior of the crosslay shall be coated with a bed liner finish. The coating shall be black in color. The coating shall be durable enough to withstand the abuse of flying hose couplings without chipping or cracking.</p>			
510.0	<b><u>FLOORING</u></b>	YES	NO	EXCEPTIONS / NOTES
510.1	The floor of the pre-connect area shall be covered with fiber reinforced material. The material shall have "T" beams in parallel connected with cross slats that are first mechanically bonded and then epoxied. The "T" sections shall be spaced apart to allow for drainage and ventilation.			
511.0	<b><u>ROLLERS</u></b>	YES	NO	EXCEPTIONS / NOTES
511.1	Stainless steel rollers shall be provided at each end of the crosslay hose bed to facilitate the deployment of the hose. Vertical rollers shall be installed on each side of the hose bed opening and a horizontal roller shall be installed under the opening.			
512.0	<b><u>DIVIDERS</u></b>	YES	NO	EXCEPTIONS / NOTES
512.1	Two (2) dividers shall be in the crosslay area. Each divider shall be fabricated of aluminum and shall be mounted in a channel on each end for adjustability. The dividers shall have a maintenance-free abraded finish.			

<b>513.0</b>	<b><u>CROSSLAY COVER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>513.1</b>	A bifold aluminum nonslip tread plate cover with a middle vinyl section shall be installed on the crosslay hose bed. The cover shall not interfere with hose loading when in the open position. Each cover side shall be provided with two stainless steel piano-style hinges that shall attach the cover to the body and allow it to bifold. The cover shall be light yet rigid. The middle vinyl section shall allow for the crosslay hose bed to be fully open while the ladder is still in the bedded position. The vinyl shall be attached at the front and rear of the crosslay hose bed with button snaps and shall be black.			
<b>514.0</b>	<b><u>END COVERS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>515.0</b>	A webbing restraint shall be located on each end of the preconnected crosslays. The webbing shall be a two-piece design and one (1) side of each piece shall be wrapped around the crosslay rollers. Each piece shall be attached to each other in the center of the crosslays using Velcro.			
<b>515.0</b>	<b><u>PRECONNECT, CROSSLAY/SPEEDLAY, 1 1/2", NST</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>515.1</b>	<p>Crosslay Load, 200' of 1 3/4" Hose, Double Stack</p> <p>A 1 1/2" pre-connect with 2" plumbing shall be provided. The pre-connect shall terminate out a swivel male NST threads.</p> <p>An Akron Brass, model 8620, 2" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Switching out of the waterway for maintenance by the removal of six bolts. Shall carry manufacturer's warranty.</p> <p>The valve shall be actuated by an Akron Brass electric actuator installed directly on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilize an electric controller with a current limiting design.</p>			

515.2	<p>The electric actuator shall be controlled by an Akron Brass, model 9327, Mini Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close. The unit shall carry the manufacturer's warranty.</p> <p>Pressure Gauge, Controls, 2 1/2", Liquid Filled PSI 0-400 The discharge shall be designated as a pre-connect so no cap and chain shall be required.</p>			
516.0	<b>PRECONNECT, CROSSLAY/SPEEDLAY, 1 1/2", NST</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
516.1	<p>Crosslay Load, 200' of 1 3/4" Hose, Double Stack</p> <p>A 1 1/2" pre-connect with 2" plumbing shall be provided. The pre-connect shall terminate out a swivel male NST threads.</p> <p>An Akron Brass, model 8620, 2" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Switching out of the waterway for maintenance by the removal of six bolts. The valve shall be manufactured and assembled in the United States.</p> <p>The valve shall be actuated by an electric actuator installed directly on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilize an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close. Unit shall carry manufacturer's warranty.</p> <p>Pressure Gauge, Controls, 2 1/2", Liquid Filled PSI 0-400 The discharge shall be designated as a pre-connect so no cap and chain shall be required.</p>			

517.0	<b><u>PRECONNECT, SWIVEL, CROSSLAY/SPEEDLAY, 2 1/2", NST</u></b>	YES	NO	EXCEPTIONS / NOTES
517.1	<p>Crosslay Load, 200' of 2 1/2" Hose, Double Stack. A 2 1/2" pre-connect with 2 1/2" plumbing shall be provided. The pre-connect shall terminate out a swivel NST.</p> <p>An Akron Brass, model 8625, 2 1/2" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a specially designed flow optimizing stainless steel ball. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Switching out of the waterway for maintenance by the removal of six bolts. Unit shall carry manufacturer's warranty.</p> <p>The valve shall be actuated by an Akron Brass electric actuator installed directly on the valve. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in five (5) seconds, a clutch less motor, and utilize an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an Akron Brass, model 9327, Mini Navigator Pro electric valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close. The unit shall carry the manufacturer's warranty.</p> <p>Pressure Gauge, Controls, 2 1/2", Liquid Filled PSI 0 400 The discharge shall be designated as a pre-connect so no cap and chain shall be required.</p>			

518.0	<b><u>AERIAL WATERWAY DISCHARGE</u></b>	YES	NO	EXCEPTIONS / NOTES
518.1	<p>A 4" discharge shall be plumbed to the aerial waterway with 5" plumbing. The plumbing shall be constructed from schedule 10 stainless steel components.</p> <p>An Akron Brass, model 8940, 4" Swing Out valve shall be provided. The valve shall have an all-brass body with flow optimizing Fusion CF composite ball with Hydromax technology. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of Swinging out of the waterway for maintenance by the removal of four bolts. The valve shall carry the manufacturer's warranty.</p>			
518.2	<p>The valve shall be actuated by an Akron Brass electric actuator installed on the valve. The electric actuator shall have a 25:1 gear ratio, which actuates from fully open to fully close in eight (8) seconds, a clutch less motor, and utilize an electric controller with a current limiting design.</p> <p>The electric actuator shall be controlled by an Akron Brass, model 9335, Navigator Pro valve controller. The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting. The unit shall be completely sealed with momentary open and close as well as an optional one (1) touch full open feature to operate the actuator. Three (3) additional buttons shall be available to be used for preset selection, preset activation, CAFS activation, and menu navigation. The unit shall be capable of being connected to a Pressure Sensor and provide an LCD showing pressure as well as valve position indication. Valve position indication shall be determined from true position feedback and indicate the exact position of the valve. The unit shall be capable of being used in conjunction with at least two (2) additional displays to control one (1) valve. The unit shall be able to be programmed to Bar, PSI, or kPa for pressure. The unit shall have programmed pipe sizes and be capable of custom calibration to high and low flow ranges. The unit shall also be capable of turning on and off a solenoid used in a CAFS system. The only calibration required is to set the unit to the valve during the initial setup. No other calibration shall be required. The display shall be a full-color LCD with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. Unit shall carry manufacturer's warranty.</p>			

<b>519.0</b>	<b><u>Discharge Labels</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>519.1</b>	All discharges shall have the OEM Standard label package unless stated otherwise. Each discharge label shall be a unique color. Specific verbiage and colors on each discharge label tag shall be determined at the preconstruction meeting.			
<b>520.0</b>	<b><u>ELECTRICAL SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>520.1</b>	Wiring harnesses shall be the automotive type, engineered specifically for the builder's apparatus, and shall meet the following criteria. Under no circumstances shall diodes, resistors, or fusible links be located within the wiring harness. All such components shall be in an easy-to-access wiring junction box or the main circuit breaker area.			



520.2	<p>All wire shall meet white book, baseline advanced design transit coach specification and Society of Automotive Engineers recommended practices. It shall be a stranded copper wire core with crosslinked polyethylene insulation complying with SAE specification J1128. Each wire shall be hot stamp function coded every three inches starting one inch from the end and continuing throughout the entire harness. In addition to function coding, each wire shall be numbered, colored, and gauge coded.</p> <p>Wire harnesses shall be protected by a 275-degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.</p> <p>Harnesses shall be modular in design; the main harness system shall be subdivided into several smaller sub-harnesses. The harness subsections shall be connected using Deutsch branded, heavy-duty, environmentally sealed, connectors with silicone seals and a rear insertion/removal contact system. For isolation of electrical "zones", the harness subsections shall consist of the main harness, a pump harness with a separate pump gauge panel harness, a left body harness with a separate left compartment harness, a right body harness with a separate right compartment harness, and a rear body harness with two separate rear compartment harnesses.</p> <p>The main harness and three body harnesses shall interconnect at a central, easy-to-reach location and their connectors shall not be obstructed by other harnesses or fuel/airlines. In addition, the main and body harness connectors shall be color-coded for ease of identification with their respective colors noted on the accompanying electrical diagrams.</p> <p>Where connectors are not provided by the electrical component manufacturer, all 12-volt lights and other electrical components (excluding rocker and toggle switches) shall connect to the harnesses using Deutsch brand connectors; butt connectors are considered unacceptable.</p> <p>All Deutsch connectors shall meet the following criteria:</p> <ul style="list-style-type: none"> <li>• All connectors shall be rated for three feet of submersion in water.</li> <li>• Temperature ranges from 67° F to 257° F continuous at rated current.</li> <li>• All contacts shall be soldered unless a crimping tool or machine is used that gives an even and precise pressure for the terminal being used.</li> <li>• All contacts shall be pull-tested to ensure their</li> </ul>			
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<b>521.0</b>	<b><u>AERIAL WIRING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>521.1</b>	<p>The AC wiring shall be Thermoplastic Elastomer (TPE) control cables and shall be highly flexible with very fine copper stranding. The cables shall have a center core strain relief for high tensile strength. The conductors shall be braided in bundles around the high tensile strength core. The outer jacket shall be gusset-filled, pressure-extruded, oil resistant, bio-oil-resistant, PVC-free, halogen-free, and UV-resistant with low temperature flexibility. The cables shall have a minimum bending radius of not greater than 5x the outer total diameter of the cable while moving.</p> <p>A load center shall be installed on the rear face of the platform with breakers for each 120V component located on the platform.</p>			
<b>522.0</b>	<b><u>120V RECEPTACLE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>522.1</b>	One (1) NEMA 520R, 120-volt receptacle shall be installed on the driver's side, tucked up under the control console and out of the way. The receptacle shall have a 20-ampere rating and include a spring-loaded weather-resistant cover if mounted in an exterior location. The receptacle shall be wired to the onboard generator.			
<b>523.0</b>	<b><u>MULTIPLEX DISPLAY ELECTRICAL MANAGEMENT SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>523.1</b>	The apparatus shall be equipped with a Multiplex Display System.			
<b>524.0</b>	<b><u>SYSTEM NETWORK</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>524.1</b>	The Multiplex system shall contain a Peer-to-Peer network.			
<b>525.0</b>	<b><u>SYSTEM RELIABILITY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>525.1</b>	The Multiplex system shall be able to perform in extreme temperature conditions, from 40° to +85° C (40 degrees to +185-degree Fahrenheit) The system shall be sealed against the environment, moisture, humidity, salt, or fluids such as diesel fuel, motor oil, or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over-voltage and reverse polarity.			

<b>526.0</b>	<b><u>12VOLT SYSTEMS TEST</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>526.1</b>	<p>After completion of the unit, the 12-volt electrical system shall undergo a battery of tests as listed in NFPA 1901. These tests shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Reserve capacity test</li> <li>• Alternator performance test at idle</li> <li>• Alternator performance test at full load</li> <li>• Low voltage alarm test</li> </ul> <p>Certification of the results shall be supplied with the apparatus at the time of delivery.</p>			
<b>527.0</b>	<b><u>TAILLIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>527.1</b>	<p>A Whelen 600 series LED taillight assembly shall be installed on each side of the rear of the apparatus. Each assembly shall include the following:</p> <ul style="list-style-type: none"> <li>• One (1) red LED stop/tail combination light</li> <li>• One (1) amber LED turn light with an arrow</li> <li>• One (1) clear LED backup light</li> </ul> <p>The lights shall be mounted in a chrome plated four (4) light composite housing. The remaining slot in the housing shall be populated with a warning light specified in the warning light section.</p>			
<b>528.0</b>	<b><u>REAR WORK LIGHT SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>528.1</b>	<p>A switch shall be installed above the taillight bezel on the left side of the rear of the apparatus. The switch shall be wired to the backup lights to provide additional work lighting. The rear work light circuit shall be deactivated when the parking brake is disengaged. In addition to the lights being activated by the above switch, the lights shall also come on when the transmission is placed in reverse.</p>			
<b>529.0</b>	<b><u>REAR WORK LIGHT WIRING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>529.1</b>	<p>The backup lights shall be wired to the rear work light switch. This switching circuit shall be deactivated when the parking brake is released. The lights shall also be activated when the transmission is placed in reverse.</p>			
<b>530.0</b>	<b><u>CAB SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>530.1</b>	<p>A switch shall be provided in the cab to activate the backup lights. This switching circuit shall be deactivated when the parking brake is released.</p>			
<b>531.0</b>	<b><u>MIDSHIP TURN SIGNALS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>531.1</b>	<p>Two (2) TruckLite model 21 LED midship auxiliary/turn signal lights shall be installed on the body as the drawing depicts, one (1) on each side.</p>			

<b>532.0</b>	<b><u>PERIMETER GROUND LIGHTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>532.1</b>	<p>4" round LED lights shall be installed beneath the apparatus in areas where personnel may be expected to climb on the apparatus. The lights shall illuminate the ground within 30" of the apparatus to provide visibility of any obstructions or hazards. These areas shall include, but not be limited to, side running boards and the rear step area.</p> <p>The lights shall be activated when the parking brake is engaged or when the transmission is placed in reverse.</p>			
<b>533.0</b>	<b><u>PARKING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>533.1</b>	<p>Two (2) Innovative Lighting LED parking lights shall be provided on the apparatus.</p> <p>These lights shall be installed in the rear fender wells, one (1) per side, appropriately located based on the side layouts. The lights shall activate when the transmission is placed in reverse and shall be aimed toward the rear.</p>			
<b>534.0</b>	<b><u>CLEARANCE LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>534.1</b>	<p>Grote red LED clearance lights shall be installed in the outside corners of the rear bumper and a TruckLite bar cluster located in the lower middle portion of the rear of the apparatus. Clearance reflectors shall be placed on the apparatus to be in full compliance with applicable ICC and DOT codes and regulations.</p> <p>Two (2) extension marker lights (rubber arm style) shall be installed at the rear portion of the body. The lights shall be attached to the back wall of the rear flex joint area. These lights shall aid the driver as to the location of the rear of the body during driving operations. The lights shall have forward-faced amber bulbs and rearward-facing red bulbs.</p>			
<b>535.0</b>	<b><u>CAMERA SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>535.1</b>	<p>A heavy-duty 360-degree camera system shall be supplied by the manufacturer. Three (3) ultra-wide 1080p cameras with surface mount housings shall be shipped loose for installation in the body to afford the driver a clear view of the rear and sides of the vehicle and one (1) OEM installed camera shall be mounted on the front of the cab, above the windshield.</p>			

535.2	<p>The system shall provide a dual camera view. One (1) view shall be a stitched bird's eye 360 degrees view around the truck and one (1) shall be a direct feed from a single camera. This feed shall display the rear camera when the transmission is placed in reverse, the left or right camera with the activation of the respective side turn Signal, or the front camera at all other times.</p> <p>The cameras shall be wired to the display screens.</p> <p>Overlay the outrigger placement for the birds-eye view on the chassis supplied 360-degree camera system.</p>			
536.0	<b><u>INSTALL CUSTOMER-SUPPLIED ANTENNAS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
536.1	There shall be two (2) customer-supplied antennas installed on the chassis cab roof by the OEM. The cables shall terminate inside the center dash area.			
537.0	<b><u>RADIO INTERFACE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
537.1	<p>One (1) Firecom mobile radio interface cable shall be supplied with the intercom system. The cable shall be radio specific and shall allow the Firecom intercom system to interface with the Motorola mobile radio system. The model of headsets used shall determine which personnel shall have radio transmit ability.</p> <p>The radio interface cable drop shall be routed to the general area of the termination of the radio antenna(s) or center dash if no antenna is required.</p>			
538.0	<b><u>FIRECOM DIGITAL WIRELESS INTERCOM SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
538.1	A Firecom model 5100D digital intercom system shall be provided on the apparatus. The system shall have a touchpad with digital logic control and LED indicators. It shall be compatible with VHF and UHF radios. The 5100D system shall have a total power input requirement for each system not to exceed two amps. It shall have independent transmit and receive level adjustments. The system shall have the capacity for up to four (4) headsets without reduction or fluctuation of sound level, regardless of the number of attached headsets. It shall have a separate 3.5 mm auxiliary input and output jack. The intercom control head shall be in the optimal position by OEM unless otherwise specified by the customer. The intercom shall carry the manufacturer's warranty.			

<b>539.0</b>	<b><u>CAB POSITIONS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>539.1</b>	<p>The Firecom intercom system shall accommodate one (1) wireless driver position, one (1) wireless officer position, and three (3) wireless crew positions in the chassis cab.</p> <p>One (1) Firecom, model WB505R, wireless base station shall be utilized. The base station shall provide wireless capabilities and shall be mounted in the optimal location by OEM unless otherwise specified by the customer.</p> <p>Four (4) Firecom, model UHW505, under the helmet, radio transmit headset shall be provided, one (1) each for the driver and officer, and two (2) to be used in the crew area. Each headset shall include, volume control, a noise canceling microphone, an adjustable head strap, flex boom microphone, liquid foam ear seals, and a red push-to-talk button. A charging station for each wireless headset shall be located next to the wireless headset hanger hooks.</p> <p>All the headsets shall be ordered with black silicone Ruggedizers.</p> <p>There will be a headset hanger (108067800) at each of the five (5) seating positions in the cab to hold a headset when not in use. The driver's and officer's hangers shall be mounted inboard of each position, and all hangers shall be in the optimal position based on cab and seat configuration by OEM unless otherwise specified by the customer. There shall be a charging cable provided at each of the five (5) cab positions.</p>			
<b>540.0</b>	<b><u>UPPER ZONE WARNING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>540.1</b>	<p>There shall be two (2) Whelen 600 Series ROTABEAM Super LED lights with chrome plated flange installed on the upper rear face of the apparatus. The hard-coated lens shall provide extended life/luster protection against UV and chemical stresses. The conformal coated PC board and sealed lens/reflector assembly shall provide additional protection against environmental elements. The solid-state warning lights shall be vibration resistant.</p>			

540.2	<p>Four (4) LED lights with chrome plated flanges shall be installed, two (2) each in the side Upper Zone. The hard-coated lens shall provide extended life/luster protection against UV and chemical stresses. The conformal coated PC board and sealed lens/reflector assembly shall provide additional protection against environmental elements. The solid-state warning lights shall be vibration resistant.</p> <p>Light/Lens Color The upper zone warning lights shall all have red LED's and red lenses The upper zone warning lights shall all have red LEDs and red lenses.</p>			
541.0	<b>LOWER ZONE WARNING LIGHTS</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
541.1	<p>Six (6) Whelen Super LED lights with chrome plated flanges shall be installed in the lower zone of the apparatus to be in accordance with NFPA 1901, current edition compliance. (2) shall be 600 Rota Beam and four (4) shall be 600 series. The hard-coated lens shall provide extended life/luster protection against UV and chemical stresses. The conformal coated PC board and sealed lens/reflector assembly shall provide additional protection against environmental elements. The solid-state warning lights shall be vibration resistant.</p> <p>Light/Lens Color The lower zone warning lights shall all have red LEDs and red lenses. The lower zone warning lights shall all have red LEDs and red lenses.</p>			
542.0	<b>UPPER ZONE- ADDITIONAL WARNING LIGHTS</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
542.1	<p>There shall be Whelen, model WIONSMCR, wide angle LED lights with flanges installed. The lights shall have red LEDs and a clear lens. They shall be installed one (1) on each side of the body at the rear to be in accordance with NFPA 1901, current edition compliance.</p> <p>There shall be two (2) Whelen, model WIONSMCA, wide angle LED lights with flanges installed. The lights shall have amber LEDs and a clear lens. They shall be installed at the rear of the body, one (1) on each side of the rear upper scene light.</p> <p>Light/Lens Color Amber lights with clear lenses. The flash pattern for all WION warning lights will be "ACTION SCAN"</p>			



<b>543.0</b>	<b><u>FOOTSWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>543.1</b>	All chassis-supplied foot switches shall be installed in an easily accessible location on both the driver's and the officer's sides.			
<b>544.0</b>	<b><u>POWER &amp; GROUND 12V POWER LEAD DROP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>544.1</b>	<p>One (1) 12-volt power lead drop with a 6position Blue Sea Systems ATO style fuse block with cover shall be provided. The power lead drop shall consist of one (1) hot and one (1) ground wire run from the batteries to the specified location. The power lead drop shall be battery direct and have a minimum of a 30-amp fuse provided with the power circuit. The distribution panel shall be capable of using ATC/ATO blade fuses or ATC-style DC circuit breakers.</p> <p>One (1) of these 12-volt power lead drops will be located in the following compartments.</p> <ul style="list-style-type: none"> <li>• L1 compartment.</li> <li>• L3 compartment.</li> <li>• R1 compartment.</li> <li>• R3 compartment.</li> <li>• PL1 compartment.</li> <li>• PR1 compartment</li> </ul>			
<b>545.0</b>	<b><u>FIRETECH HI-VIZ SURFACE MOUNT SCENE LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>545.1</b>	<p>Three (3) Firetech HiViz Guardian Elite series scene light, model FTGESM surface mount lights with chrome bezels shall be installed on the apparatus. Each light shall be mounted with four (4) screws to a flat surface. They shall be no more than 8.65" high by 10.61" wide and have a profile of less than 1.79" beyond the mounting surface.</p> <p>Each light shall draw 10.41 amps and generate 20,000 raw lumens of light. The LED scene lights shall be for fire service use.</p> <p>The three (3) lights shall be located on the sides of the body header on the driver's side.</p> <p>The officer's side scene light(s) shall be controlled by a switch located on the multiplex display in the chassis cab. The activation for the driver's side scene lights on the multiplex display shall be labeled "LEFT SCENE."</p>			

546.0	<b><u>FIRETECH HI-VIZ SURFACE MOUNT SCENE LIGHTS</u></b>	YES	NO	EXCEPTIONS / NOTES
546.1	<p>Three (3) Firetech HiViz Guardian Elite series scene light, model FTGESM surface mount lights with chrome bezels shall be installed on the apparatus. Each light shall be mounted with four (4) screws to a flat surface. They shall be no more than 8.65" high by 10.61" wide and have a profile of less than 1.79" beyond the mounting surface.</p> <p>Each light shall draw 10.41 amps and generate 20,000 raw lumens of light. The LED scene lights shall be for fire service use.</p> <p>The three (3) lights shall be located on the sides of the body header on the officer's side.</p> <p>The officer's side scene light(s) shall be controlled by a switch located on the multiplex display in the chassis cab. The activation for the driver's side scene lights on the Multiplex display shall be labeled "RIGHT SCENE."</p>			
547.0	<b><u>FIRETECH HI-VIZ SURFACE MOUNT SCENE LIGHTS</u></b>	YES	NO	EXCEPTIONS / NOTES
547.1	<p>Two (2) Firetech HiViz Guardian Elite series scene lights, with chrome bezels, shall be installed on the apparatus. Each light shall be mounted with four (4) screws to a flat surface. They shall be no more than 8.65" high by 10.61" wide and have a profile of less than 1.79" beyond the mounting surface.</p> <p>Each light shall draw 10.41 amps and generate 20,000 raw lumens of light. The LED scene lights shall be for fire service use.</p> <p>The two (2) lights shall be installed on the rear face of the body, one (1) on each side.</p> <p>Lighting Activation, On Multiplex display Screen, 'REAR SCENE', Wired to Reverse and Rear Work Light Switch</p> <p>The rear scene light(s) shall be controlled by a Switch located on the Multiplex display in the chassis cab and shall be labeled "REAR SCENE."</p> <p>In addition to the Switch located on the Multiplex display, the rear scene light(s) shall be activated by the rear work light Switch and when the apparatus is placed in reverse.</p>			

548.0	<b>GENERATOR</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
548.1	<p>A Harrison hydraulic-driven generator shall be installed on the apparatus. The continuous duty rating of the generator shall be 10,000 watts, 42/83 amps, 120/240VAC volts. The current frequency shall be stable at 60 hertz.</p> <p>The system shall be designed and assembled by a company with no less than 10 years of experience in the manufacture of hydraulic-driven generators. The system shall be tested before shipping and shall be accompanied with a test report. The generator shall be tested at various loads from no load to full load to ensure reliable power delivery at various loads.</p> <p>The motor/generator shall be placed in a frame, which affords protection to the components and provides a unitized mounting module containing the motor/generator, reservoir, oil cooler, filtration, and an on/o manifold containing a cross port check valve allowing the unit to be started and shut down remotely. The generator shall be a commercial type with a heavy-duty bearing and brushless design to ensure low maintenance. No brushes or slip rings shall be allowed. The reservoir shall include an oil level sight gauge, oil temperature gauge, fill cap, oil filter, and a venturi boost unit to provide positive pressure to the pump suction port. The generator and motor shall be close-coupled and aligned using a Morse taper with a through bolt to secure the motor to the generator. No two (2) bearing generators shall be used.</p> <p>The system must be capable of producing the rated full power when driven from the vehicle PTO from idle to maximum engine speed.</p> <p>The hydraulic motor and pump shall be of axial piston design to provide low internal leakage and a high degree of frequency stability. No gear pumps or motors shall be used. The pump shall match the system with the proper orifice, pressure compensator, and load sense settings to provide stable output regardless of engine rpm or electrical load demands.</p> <p>The system shall be capable of normal operations using a commonly available ISO 46 fluid. All fluid service points shall be near the reservoir for ease of scheduled maintenance. The system shall carry the manufacturer's warranty</p>			

<b>549.0</b>	<b><u>GENERATOR DISPLAY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>549.1</b>	<p>A Harrison metering display shall be provided with the generator. The display shall automatically sense a generator Signal and begin displaying information. The digital meter display shall constantly monitor and display voltage, frequency (accurate to within 1 decimal point), and current draw on two separate lines. The display shall be capable of displaying total accumulated run-time hours when the MODE button is pressed. This information shall be stored in a nonerasable memory.</p> <p>A remote start switch shall be installed on the pump panel for the generator.</p>			
<b>550.0</b>	<b><u>TRANSFER SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>550.1</b>	A transfer switch shall be installed that will automatically switch from the 120-volt shoreline power to 120Volt generator power when required. The transfer switch shall be near the load center.			
<b>551.0</b>	<b><u>GENERATOR PTO CONNECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>551.1</b>	<p>The hydraulic pump for the generator system shall be connected to the chassis transmission through a "Hot Shift", electrically engaged power take off system. The control to engage and disengage the power Take off system shall be installed in the chassis cab.</p> <p>The Harrison generator shall be located ahead of the turntable.</p>			
<b>552.0</b>	<b><u>12 CIRCUIT NONGFI LOAD CENTER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>552.1</b>	A 120/240-volt load center shall be incorporated into the 120/240-volt wiring system. The load center shall include adequate circuit breakers to protect the loads specified on the apparatus. The entire 120/240-volt electrical system shall be installed in accordance with NFPA 1901, current edition. This shall include all testing, labeling, wiring methodology, and dimensional requirements. Certification of compliance shall accompany the apparatus at the time of delivery. All 120/240-volt A.C. wiring shall be done in accordance with NFPA 1901, current edition as well as nationally accepted electrical codes.			

<b>553.0</b>	<b><u>BRANCH CIRCUIT OVERCURRENT PROTECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>553.1</b>	<p>Over current protection devices shall be provided for circuits in accordance with NFPA 1901, current edition. The load center shall be equipped with a non-GFI two-pole main breaker when the six or more individual branch circuits are present. Over-current protection devices shall be marked with labels to identify the function of the circuit they protect.</p> <p>The generator load center shall be located on the forward wall of the PL1 compartment.</p>			
<b>554.0</b>	<b><u>120V RECEPTACLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>554.1</b>	<p>One (1) NEMA 520R, 120-volt, duplex, 3wire, straight blade (household type) receptacle shall be installed on the apparatus. The receptacle shall have a 20-amp rating and include a spring-loaded weather-resistant cover if mounted in an exterior location.</p> <p>The receptacle shall be wired to the transfer Switch.</p> <p>The receptacles shall be in the following compartments.</p> <ul style="list-style-type: none"> <li>• PR1 compartment.</li> <li>• SL1 compartment.</li> <li>• L3 compartment.</li> <li>• R3 compartment.</li> </ul>			
<b>555.0</b>	<b><u>ELECTRIC CORD REEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>555.1</b>	<p>A Hannay 120-volt electric rewind cord reel shall be installed on the apparatus. A push button labeled "REEL REWIND" shall be installed for 12volts rewinding of the cord reel.</p> <p>Rollers shall be supplied to prevent damage to the electrical cable if pulled in any direction.</p> <p>The cord reel shall be equipped with 200' of yellow STW Seoprene 10/3 wire installed with a cable stop to prevent damage to cable fittings. The cord shall terminate in a single L520 twist lock receptacle.</p>			

556.0	<b>JUNCTION BOX</b>	YES	NO	EXCEPTIONS / NOTES
556.1	<p>A Circle D, model PF51, electrical junction box equipped with four (4) electrical receptacles shall be provided. The cord reel shall be connected to the junction box through a 12" pigtail with heavy-duty water-resistant strain relief and flexible extender. The pigtail shall utilize an L520 twist lock plug and connector to supply power to the receptacles. The receptacles shall be enclosed in a UL-listed NEMA Type 3R cast aluminum box with aluminum finish and NFPA required indicator light.</p> <p>The junction box shall have a silver hammer tone powder coat finish.</p> <p>Junction Box Receptacle, 120V, 520R Straight Blade, Duplex</p> <p>One (1) NEMA 520R, 120-volt, duplex, 3wire, straight blade (household type) receptacle shall be installed on the junction box.</p> <p>Junction Box Receptacle, 120V, 520R Straight Blade, Duplex</p> <p>One (1) NEMA 520R, 120-volt, duplex, 3wire, straight blade (household type) receptacle shall be installed on the junction box.</p> <p>Junction Box Receptacle, 120V, 520R Straight Blade, Duplex</p> <p>One (1) NEMA 520R, 120-volt, duplex, 3wire, straight blade (household type) receptacle shall be installed on the junction box.</p> <p>One (1) NEMA 520R, 120-volt, duplex, 3wire, straight blade (household type) receptacle shall be installed on the junction box.</p> <p>The cord reel shall be located on top of the body above the L4 compartment.</p> <p>A tread plate mounting bracket to hold the junction box shall be included.</p>			

<b>557.0</b>	<b><u>100' MIDMOUNT PLATFORM CONSTRUCTION STANDARDS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>557.1</b>	The aerial platform shall be of midmount design, with the turntable located directly and immediately behind the chassis cab. While in the stowed position, the aerial ladder sections shall extend backward to the rear of the apparatus. The aerial ladder shall be comprised of five sections and shall extend to a nominal height of 100' at 72 degrees, measured in a vertical plane from the platform handrail to the ground. To maintain a maximum level of safety, units exceeding a 76-degree angle of inclination, in accordance with NFPA 1931/1932, current edition, shall not be acceptable.			
<b>558.0</b>	<b><u>OPERATIONAL ENVELOPE/REACH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>558.1</b>	<p>The aerial ladder shall have a minimum operating range of -12 degrees elevation to +72 degrees elevation.</p> <p>While on a flat surface a minimum vertical reach of 100' shall be measured from the ground to the top of the handrail of the platform while at maximum extension and elevation.</p> <p>A minimum horizontal reach of 99' shall be measured from the turntable centerline to the leading edge of the platform with the aerial at 0 degrees elevation.</p> <p>Reach and height shall be measured in accordance with NFPA 1901, current edition.</p>			
<b>559.0</b>	<b><u>STRUCTURAL MATERIAL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>559.1</b>	<p>The primary load support members of the ladder shall be constructed of certified 70,000 PSI yield strength (minimum) steel tubing. Each section shall be trussed diagonally, vertically, and horizontally using welded steel tubing. All critical points shall be reinforced for extra rigidity and to provide a high strength-to-weight ratio.</p> <p>All ladder rungs shall be constructed of certified steel tested per ASTM A370 standards.</p> <p>The steel shall meet a minimum 6.0 Atmospheric Corrosion Factor. The ladder rungs shall be round and welded to each section.</p>			



<b>559.2</b>	All welding of structural components, including the aerial ladder sections, turntable, pedestal, and outriggers, will comply with the American Welding Society standards. All welding personnel will be certified, as qualified under AWS welding codes. Materials used to manufacture the structural components are to be certified by the mill that manufactured the materials. Certifications or recertifications of structural materials by vendors other than the mill they were manufactured at will not be acceptable. Any material testing that is performed after the mill test will be for verification only and not completed with the intent of changing the classification. Any welded structural component for the ladder will be traceable to their mill lots.			
<b>560.0</b>	<b><u>PRIMARY DIMENSIONS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>560.1</b>	<p>The inside dimensions of the ladder shall be as follows:</p> <ul style="list-style-type: none"> <li>• Base Section 49.000"</li> <li>• First Fly Section 41.250"</li> <li>• Second Fly Section 34.375"</li> <li>• Third Fly Section 27.500"</li> <li>• Last Fly Section 21.750"</li> </ul> <p>The minimum height of the handrails above the center line of the rungs shall be as</p> <ul style="list-style-type: none"> <li>• Base Section 35.875"</li> <li>• First Fly Section 30.375"</li> <li>• Second Fly Section 26.375"</li> <li>• Third Fly Section 22.875"</li> <li>• Last Fly Section 19.375"</li> </ul>			
<b>561.0</b>	<b><u>NFPA SAFETY FACTOR AND RATED CAPACITIES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>561.1</b>	The methodology, definitions, testing, and criteria used by the aerial manufacturer to determine the preceding and following Safety Factor and Rated Capacity of the aerial device shall be in strict compliance with the definitions of such, in accordance with NFPA 1901, current edition, and these specifications. Any apparatus claiming to exceed the testing requirements of NFPA 1901 shall provide certified documentation of the tests.			

<b>562.0</b>	<b><u>AERIAL DEVICE SAFETY FACTOR AND RATED CAPACITY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>562.1</b>	<p>The purchaser desires to purchase with these specifications, an aerial device with a minimum 2.0:1 safety factor as required and in accordance with NFPA 1901, current edition. Therefore, the aerial manufacturer shall hereby certify, by submitting a bid for these specifications; that the aerial device meets or exceeds the following requirements.</p> <p>The design stress or primary stress within all structural load supporting members of the aerial device does not exceed 50% of the minimum as the welded yield strength of the material based on the combination of the dead load of the aerial plus the rated capacity of 500 lbs. at the tip of the aerial; while flowing 1500 GPM, at a 90-degree angle to ladder centerline; with the structural load supporting members of the aerial device at either; an ambient temperature of 75 degrees F or an elevated temperature of 350 degrees F thereby exhibiting a minimum 2.0:1 safety factor in all feasible operational conditions.</p> <p>These capabilities shall be valid when the apparatus is deployed in the unsupported configuration, based upon 360-degree rotation, up to full extension, and at any degree of elevation (12 to +72).</p>			
<b>563.0</b>	<b><u>AERIAL DEVICE SAFETY FACTOR SERVICE LIFE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>563.1</b>	<p>The purchaser desires to purchase an aerial device with a safety factor that remains NFPA compliant and constant throughout the life of the aerial device. The safety factor of every structural load-bearing member in the aerial device shall remain above 2.0:1 for a "Safety Factor Service Life" of up to 20 years minimum. Any apparatus claiming to exceed the guidelines of NFPA 1901 shall provide certified documentation.</p>			
<b>564.0</b>	<b><u>AERIAL SPECIAL LABELS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>564.1</b>	<p>Legible, permanent signs shall be installed in positions readily visible to the operator to provide operational directions, warnings, and cautions. The signs shall describe the Warning and caution signs shall indicate hazards inherent in the operation of the aerial device. These hazards shall include, but shall not be limited to:</p>			

564.2	<ul style="list-style-type: none"> <li>• Electrical hazards are involved where the aerial device does not protect the personnel from contact with, or proximity to, an electrically charged conductor.</li> <li>• Electrical hazards are involved where the aerial device does not protect ground personnel who might contact the vehicle when in contact with energized electrically charged conductors.</li> <li>• Hazards from stabilizer motion.</li> <li>• Hazards can result from failure to follow the manufacturer's operating instructions.</li> </ul>			
565.0	<b><u>AERIAL DEVICE SPECIFICATION PLACARD</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
565.1	<p>A permanent label shall disclose the following information relative to the aerial device:</p> <ul style="list-style-type: none"> <li>• Make</li> <li>• Model</li> <li>• Insulated or non-insulated</li> <li>• Serial number</li> <li>• Date of manufacture</li> <li>• Rated capacity (s)</li> <li>• Rated vertical height</li> <li>• Rated horizontal reach</li> <li>• Maximum hydraulic system pressure</li> <li>• Hydraulic oil type and capacity</li> <li>• All other appropriate labels to ensure the safe operation of the aerial device shall be permanently secured in conspicuous locations.</li> </ul>			
566.0	<b><u>THIRD-PARTY NONDESTRUCTIVE TESTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
566.1	<p>Welds shall be tested using two (2) nondestructive methods by an independent third party. Devices that have not been certified by an engineer that is independent of the manufacturer shall not be acceptable. Welds shall be tested using two (2) non destructive methods by an independent third-party inspection firm. Steel and aluminum ladders shall, at a minimum, have all welds tested using two (2) separate NDT methods.</p> <p>Aerial structures shall have 100 % of all structural welds tested using both the magnetic particle method and visual testing method. Aerials that are fabricated of aluminum shall have 100% of all structural welds tested using the dye penetrate method and visual method. Manufacturers who rely only on visual inspection, performed inhouse or by a third party, as a primary method of testing shall not be considered, and their bid shall be rejected.</p>			

567.0	NFPA AERIAL STABILITY FACTOR AND TESTING	YES	NO	EXCEPTIONS / NOTES
567.1	<p>A one and one-half to one (1.5:1) stability factor shall be provided. These capabilities shall be established in an unsupported configuration. Since the device is rated while flowing water, stability testing shall account for the distributed weight of water in a full waterway and water reactionary force as required by NFPA 1901.</p> <p>The following are specific descriptions of what tests are to be performed, and conditions they shall be performed under, and strictly adhered to by the aerial manufacture outlined in these specifications and the current edition of NFPA 1901.</p> <p>For both of the following tests, the only obstructions to a full 360-degree rotation with the aerial at 0 degrees elevation and full extension; shall be presented by the apparatus itself, and not external obstructions at the manufacturer's test location. This means that the aerial device manufacturer shall ensure that the testing grounds present no obstruction (trees, buildings, etc.) to the full 360-degree rotation at 0 degrees elevation and full extension, which may cause the need to raise the aerial to clear the obstruction.</p> <p>Additionally, the apparatus shall be tested for stability only after the entire apparatus is complete. Manufacturers using a third party to manufacture the aerial device must provide certified documentation the unit was tested by the manufacturer of the aerial and the final OEM manufacturer. This requirement is specified in NFPA 1901 as the apparatus is in "service ready condition". There shall be no exception to this requirement since it would be unlikely that actual weight distribution could be accurately simulated for the stability testing.</p>			
568.0	TEST 1	YES	NO	EXCEPTIONS / NOTES
568.1	<p>After the above conditions have been satisfied, the aerial shall be subjected to the following test in the presence of the third-party testing company that complies with these specifications. Specifically, the aerial device shall be placed on level ground with the stabilizers deployed per manufacturer recommendations.</p>			

<b>568.2</b>	The aerial device then shall have 1.5 times the rated capacity placed at the tip of the aerial, with the device at full extension and at 0 degrees elevation, which is the most stringent configuration. The device shall be rotated 360 degrees raising and lowering the aerial as needed to clear the cab of the apparatus. The aerial shall prove to be stable during the entire test and no component of the aerial shall permanently deform.			
<b>569.0</b>	<b>TEST 2</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>569.1</b>	After the above conditions have been satisfied, the aerial shall be subjected to the following test in the presence of the third-party testing company that complies with these specifications. Specifically, the aerial device shall be placed on a 5-degree downward slope with the stabilizers deployed per manufacturer recommendations. The aerial device then shall have 1.33 times the rated capacity placed at the tip of the aerial, with the device at full extension and at 0 degrees elevation, which is the most stringent configuration. The device shall be rotated 360 degrees raising and lowering the aerial as needed to clear the cab of the apparatus. The aerial shall prove to be stable during the entire test and no component of the aerial permanently deforms.			
<b>570.0</b>	<b>RUNG COVERS</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>570.1</b>	<p>Each rung shall be covered with secure, heavy-duty, deeply serrated rubber sheathing. The rung cover shall be installed on a minimum of sixty percent (60%) of each ladder rung. Attachment of the sheathing to the rung shall be by mechanical means and an adhesive application. Under no circumstance shall the rung covers turn when a rung is at ambient temperature (75 degrees F) or an elevated temperature (350 degrees F); there shall be no exception to this requirement for the safety of persons climbing the ladder sections.</p> <p>The sheathing shall be easily replaceable if the rubber becomes worn, however, the rung covers shall be designed, constructed, and installed with lifetime service as the objective. To ensure ease of maintenance if damaged, manufacturers using embossed metal in place of the rubber rung covers is not acceptable.</p> <p>To prevent corrosion of the rungs by introducing air to the inside, under no circumstances will rung covers attached with screws or rivets be acceptable.</p>			

571.0	<b>HEAVY DUTY LADDER TRAVEL SUPPORT</b>	YES	NO	EXCEPTIONS / NOTES
571.1	<p>A heavy-duty ladder rest shall be provided for support of the ladder in the travel position. The travel support shall be fabricated from heavy-duty steel tubing and painted to match the primary body color. If the body is a two-tone design, the travel support shall be painted to match the top body color. The travel support shall be designed to be easily removable to allow for ease of maintenance and repair when necessary.</p> <p>The base section of the ladder shall contain stainless steel scuff plates where the ladder contacts the ladder support.</p> <p>An indicator light shall be provided on the turntable to indicate when the ladder is aligned with the travel support and may be lowered into it. The ladder rest shall be attached to the torque box for added stability.</p> <p>The ladder rest shall be illuminated for nighttime operation. The illumination light shall automatically turn on with the aerial master Switch.</p> <p>A hold-down mechanism shall be installed on each side of the ladder travel support that keeps the aerial structure from bouncing due to a road hammer. The system shall be designed in such a manner to automatically unlatch the hold-downs when the aerial hydraulic system is activated. The hold-downs shall automatically lock in the road position when the hydraulic system is shut down.</p>			
572.0	<b>CRADLE INTERLOCK SYSTEM</b>	YES	NO	EXCEPTIONS / NOTES
572.1	<p>A cradle interlock system shall be provided to prevent the lifting of the ladder from the nested position until the operator has positioned all the stabilizers in a load-supporting configuration. A switch shall be installed at the cradle to prevent the operation of the stabilizers once the aerial has been elevated from the nested position.</p>			
573.0	<b>ELEVATION SYSTEM</b>	YES	NO	EXCEPTIONS / NOTES
573.1	<p>Two (2) double-acting lift cylinders shall be utilized to provide smooth precise elevation from 12 degrees below horizontal to 72 degrees above horizontal. The lift cylinders shall have a 7" internal diameter (bore) and a 4" solid cylinder rod. The lift cylinders shall be equipped with integral holding valves located on the cylinder to prevent the unit from lowering should the charged lines be severed at any point within the hydraulic system.</p>			

573.2	<p>The lowering of the ladder shall be controlled by a pressure limiting valve, to limit the downward pull of the ladder when it is bedded. Both raising and lowering functions shall be influenced by flow compensation, which shall maintain ladder tip speed within the design speed regardless of load, angle, or extension. Ladder tip speed shall be decelerated above 65 degrees to reduce "tip lash". Ladder lowering shall be controlled on the down motion to prevent the cylinders from completely retracting, thus allowing a cushion of oil for continuous ladder load readout.</p> <p>The elevation cylinder upper and lower pivot pins shall be installed with a secondary tensioning system to secure the pins and prevent them from slipping out over time. The design shall not inhibit the pins from being removed for future servicing purposes.</p>			
574.0	<b>EXTENSION/RETRACTION SYSTEM</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
574.1	<p>A fully hydraulic powered extension and retraction system shall be provided using two (2) sets of Siamese hydraulic cylinders and cables. Each set shall be capable of operating the ladder in the event of a failure of the other. The extension cylinders shall each have a 4.0" internal diameter (bore) and a 2.0" diameter solid rod with a 51.50" stroke.</p> <p>Extension and retraction of the telescopic sections shall be internally limited within the cylinders, eliminating excess strain on the cables, sheaves, and ladder structure. Each of the cylinder, cable, and sheave assemblies shall be completely independent of the other, to provide a safety factor wherein a failure of one assembly will not affect the function and operation of the other. The extension cylinders shall be equipped with counterbalance holding valves to synchronize the cylinders for smoother operation and prevent the unit from retracting should the charged lines be severed at any point within the hydraulic system. The holding valves shall be mounted directly on the cylinders with no hoses between the valve and the cylinder.</p> <p>The reeling of the cable shall be such to provide synchronized, simultaneous movement of all sections from full extension to full retraction. All pulleys and sheaves shall be enclosed as an added safety feature as well as to prevent personnel on the ladder from becoming entangled in them.</p>			



<b>575.0</b>	<b><u>HIGH-DUTY CYCLE SHEAVE BEARINGS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>575.1</b>	<p>For maximum performance in high-duty cycle environments, the aerial sheaves shall be provided with bearings made from bronze.</p> <p>A grease zerk shall be provided for each sheave bearing for reliable, long-term performance.</p>			
<b>576.0</b>	<b><u>AERIAL CABLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>576.1</b>	<p>To ensure a maximum level of safety the following standards shall be used on the extension and retraction cable system with no exception:</p> <ul style="list-style-type: none"> <li>• Cables shall have a 5:1 safety factor based on ultimate strength under all safe operating conditions.</li> <li>• The factor of safety shall remain above 2:1 during any extension or retraction system stall</li> <li>• The minimum ratio of the diameter of the cable to the diameter of the sheave shall be 1:12</li> </ul> <p>All cables shall be prestressed, proof loaded, and certified by the cable manufacturer to minimize changes to the cable lengths and performance.</p>			
<b>577.0</b>	<b><u>CERTIFIED CABLE SWITCHED SHACKLES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>577.1</b>	All switched shackle ends shall have a certification test from the manufacturer of the assembly.			
<b>578.0</b>	<b><u>IGUS ENERGY CHAIN</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>578.1</b>	<p>The electrical cable, hydraulic hose, and/or air hose shall be routed through the interior of the structural tubing of the ladder sections as well as utilizing the Igus energy chain. The energy chain shall be routed through the inside section of the vertical side walls of the aerial ladder device. The cable and/or hose routing shall use one or both bottom cord rectangular tube(s) on the base section of the ladder and the bottom cord rectangular tube(s) on the last ladder fly section. The ladder sections between the base and last fly shall utilize the energy chain to route all electrical cables and hose lines.</p> <p>Each model of energy chain used shall be adequately sized to fit the application.</p>			

578.2	<p>Rollers, which are in the lower portion of the ladder section(s), shall be constructed of a nylon plastic material that is specifically designed for these types of applications. Spacer pads, made from the same material as the rollers, shall be installed and evenly spaced to secure the Igus energy chain within the specifically designed carrier shield(s).</p> <p>The electrical cables used to transfer power up to the ladder tip shall be Igus Chain Flex cables. These cables are specially designed for the Igus energy chain system and custom fit for each aerial apparatus.</p> <p>Igus Energy chain is virtually wear-free and offers extremely quiet operation. Igus energy chain is very well suited to resist harsh environmental conditions by being able to withstand extreme temperatures and is also UV resistant.</p>			
579.0	<b><u>WEAR PADS/BEARING SURFACES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
579.1	<p>Nylon wear pads impregnated with molybdenum disulfide and high in molecular weight shall be used between the telescoping sections for maximum weight distribution, strength, and smoothness of operation.</p> <p>Stainless steel adjustment screws shall be provided on the wear pads to permit proper side tension. Plates shall be installed on the sides of the slide pads where adjustment screws come into contact with them. No exceptions shall be allowed to this requirement to prohibit the adjustment screws from embedding themselves into the pads, which may cause the pad to crack and fail.</p> <p>To prevent additional maintenance and pressure points from the limited surface area, roller systems in place of wear pads will not be considered acceptable.</p>			
580.0	<b><u>ROTATION BEARING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
580.1	<p>A 44-inch diameter internal tooth, switching circle bearing shall be used for the rotation system. The bearing shall provide 360 degrees of continuous rotation. The bearing shall be designed specifically for the aerial device.</p> <p>The bearing shall be bolted to the turntable and the base support structure with SAE grade 8 bolts. Welding on the bearing in any manner shall not be acceptable.</p>			

580.2	<p>The turntable base and the torque box bearing plate shall be machined to match, providing an even distribution of forces, and reducing the chance of fracturing the bearing.</p> <p>The turntable base and the torque box bearing plate surfaces that contact the bearing shall be machined to prevent loading the bearing when the attaching bolts are brought to full torque. Machining of the surfaces shall be done after all welding to assure no further distortion of the material.</p> <p>Shims shall not be acceptable as they reduce the surface contact area significantly thereby causing a concentration of forces at the shims.</p>			
581.0	<b><u>BOLT TORQUING FROM TOP SIDE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
581.1	<p>All rotation-bearing bolts shall be torqued from the top side of the turntable without the bolt or nut being held under the turntable by a person. Units requiring the removal of equipment to access the torque bolts shall be considered unacceptable.</p> <p>This design shall prevent the bolt from "spinning" while torque is being applied to the fastener. Application of Loctite or a similar compound alone, without any other means provided to hold the fastener, shall not be acceptable. Additionally, this design feature shall not incorporate drilling, bending, welding on, or in any way modifying the structural fastener, nut, or washers.</p>			
582.0	<b><u>ROTATION GEAR REDUCTION BOX</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
582.1	<p>A hydraulically driven planetary gearbox with a drive speed reducer shall be used to provide infinite and minute rotation control throughout the entire rotational travel. The rotation gear reduction box shall be installed on the top side of the turntable so that it is easily accessible, yet it shall be installed so that it does not provide an obstruction or tripping hazard to persons on the turntable. Specifically, it shall be installed toward the front of the turntable, under the aerial ladder base section. Under no circumstance shall the gearbox present any interference with the aerial device, even at low elevations.</p>			

582.2	<p>Due to the additional maintenance required to keep two (2) rotation motors functioning properly without binding, units requiring more than one (1) rotation motor are not considered acceptable.</p> <p>A spring applied, hydraulically released disc type Switching brake shall be furnished to provide positive braking of the turntable assembly.</p> <p>Provisions shall be made for manual operation of the rotation system should a complete loss of hydraulic power occur. These provisions shall include a manual rotation drive tool supplied with the unit.</p> <p>The hydraulic system shall be equipped with pressure relief valves, which shall limit the rotational torque to a nondestructive power. All moving parts of the rotation gear reduction box shall be enclosed or under the turntable decking so that no safety hazards are present.</p>			
583.0	<b><u>ROTATION INTERLOCK SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
583.1	<p>The aerial device shall be equipped with a rotation interlock system to prevent the ladder from being rotated to any side where the stabilizers are not sufficiently extended to provide for the full tip load rating.</p> <p>The system shall monitor the stabilizers for an extension. When a stabilizer is not sufficiently extended (short jacked) to provide a full tip load rating, the system shall prevent the aerial from being rotated more than 12 degrees past the front or rear center line into the short jacked side of the apparatus.</p> <p>A slowdown feature shall be built into the rotation interlock system. When the aerial is operating in a short jacked mode, the rotational speed shall be automatically reduced, by approximately 50%, when the aerial is rotated to within approximately 10 degrees of the front or rear center line of the apparatus. The rotational speed shall remain reduced throughout an arc of approximately 20degrees over the front or rear of the apparatus, regardless of the direction of the rotation movement.</p>			

583.2	<p>The rotation function shall automatically stop when the aerial approaches the front or rear corner area of the short jacked side of the apparatus.</p> <p>The rotation interlock system shall allow for normal operation on the side of the apparatus where the stabilizers are sufficiently extended for full tip load rating.</p> <p>An override system, activated by pull knobs within the main turntable control pedestal, shall be provided that allows the operator to rotate the aerial into the (short jacked) side of the apparatus, should the situation demand it. To ensure the maximum amount of safety, units allowing aerial rotation to the short jacked side of the apparatus or systems shall only include a visual warning, audio warning and automatically stop rotation.</p>			
584.0	<b><u>AERIAL STOW OPERATION INTERLOCK SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
584.1	<p>A safety feature shall be included in the aerial operational system that limits the possibility of damage to the apparatus when stowing the aerial.</p> <p>When a rear-mounted aerial is positioned over the cab area of the apparatus, the interlock system shall not allow the downward movement of the aerial below a preset angle of elevation, unless the aerial is rotated into the bed zone envelope. The bed zone shall be approximately 2 degrees of rotation to the left and right side of the center of the aerial bed support. Once this bed zone envelope is attained, downward movement of the aerial shall be allowed for proper positioning into the bed support.</p> <p>An indicator light shall be located at the turntable control station to inform the aerial operator when the bed zone envelope is attained.</p>			
585.0	<b><u>COLLISION PROTECTION INTERLOCK</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
585.1	<p>The apparatus shall be equipped with a cab collision protection interlock. This interlock shall be enabled while rotating the aerial device at elevations as low as, or lower than the cab of the apparatus. Should the operator accidentally rotate the aerial device toward the cab at an elevation low enough to cause a collision with the cab, the interlock shall automatically stop the rotation of the aerial at a point that is within a few degrees of the cab.</p>			
585.2	<p>A manual override shall be provided to override the interlock system.</p>			

586.0	<b><u>APPARATUS BODY DAMAGE CONTROL INTERLOCK SYSTEM</u></b>	YES	NO	EXCEPTIONS / NOTES
586.1	<p>A safety feature shall be included in the aerial operational system that minimizes the possibility of damage to the apparatus body at all angles for all standard (non-override) operational modes.</p> <p>The system shall automatically stop the downward movement of the aerial at a preset angle of elevation unless the aerial has been rotated at least 80degrees, left or right, from the center of the ladder support. Once this rotation point is reached, full range downward movement (to 8 degrees) shall be allowed.</p> <p>The aerial manufacturer shall determine and set the angle of elevation where downward aerial movement is stopped. The highest point of an apparatus, in relation to the distance from the turntable, shall be used to determine the preset elevation angle stopping point.</p> <p>The system shall also minimize the possibility of accidental damage to the apparatus body from aerial rotation whenever the aerial elevation is below the preset elevation angle stopping point.</p> <p>Rotational speed shall be reduced by approximately 50% when the aerial is rotated within a minimum of 10 degrees of a body avoidance stopping point. Aerial rotation shall automatically stop before the aerial contacts the body of the apparatus.</p> <p>The body damage interlock system shall not affect aerial operation when the aerial is raised above the preset downward movement stopping point.</p> <p>The body damage interlock system shall not eliminate the possibility of damage to components such as telescopic lights that are in a raised position.</p> <p>A manual override shall be provided that will override the interlock system.</p>			

<b>587.0</b>	<b><u>POWER TAKEOFF</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>587.1</b>	The apparatus shall be equipped with a power take-off (PTO) driven by the chassis transmission and actuated by an electric shift, located inside the cab. The PTO, which drives the hydraulic pump, shall meet all the requirements for the aerial unit operations.			
<b>588.0</b>	<b><u>HYDRAULIC SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>588.1</b>	<p>Hydraulic Pump</p> <p>The tubing and hoses used in the hydraulic system shall have a high pressure rating, with the tubing having a minimum burst pressure of 9,600 to 17,400 PSI and the hoses being a minimum of 8,000 to 13,000.</p> <p>The hydraulic oil tank shall have an approximate capacity of 28 gallons. A dipstick shall be provided to check the oil level. The oil fill shall be furnished with a cap that shall act as a ventilator to provide clean fresh air into the oil tank. A magnetic drain plug shall be provided at a low point of the oil tank. An easily accessible 3-micron replaceable oil filter shall be installed on the hydraulic oil tank. The hydraulic oil tank shall be furnished with two pickup tubes, one tube for normal operation and the other for emergency operation. The emergency pickup tube shall extend further down into the oil tank to provide for reserve oil in case a hydraulic line is broken.</p> <p>The hydraulic system shall be protected from possible hydraulic pump malfunctions by a relief valve, which shall route the excess oil into the oil tank when the pressure in the hydraulic system exceeds 3,500 PSI. The hydraulic control valves shall also be protected by being plumbed to a pressure relief valve to protect them from high pressure.</p> <p>The hydraulic system shall be designed in such a way that all nonsealing moving components whose failure could result in the motion of the aerial device shall have a minimum bursting strength of four times the maximum operating pressure to which the component is subjected. The hydraulic system shall have adequate cooling for continuous operation of not less than 2 1/2 hours.</p>			



<b>589.0</b>	<b><u>"THRUDRIVE" HYDRAULIC PUMP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>589.1</b>	<p>The hydraulic system shall be supplied by a pressure compensated, load sensing, variable gallonage type pump. The pump shall provide adequate fluid volume to allow all ladder functions to operate simultaneously, without noticeable loss of speed. The pump shall supply oil only when the ladder is in motion, thereby preventing overheating of the hydraulic oil.</p> <p>The pump shall be a "thru drive" design. This design shall be provided for applications that require a power source for additional hydraulically operated accessories or tools.</p> <p>An interlock shall be provided that allows the operation of the aerial device PTO shift only after the chassis spring brake has been applied and the chassis transmission has either been placed in the neutral position or the drive position if the driveline has been disengaged from the rear axle.</p>			
<b>590.0</b>	<b><u>HYDRAULIC PRESSURE GAUGE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>590.1</b>	A 2 1/2" brass case 5,000 PSI, pressure gauge shall be located at the ground level control station to monitor the hydraulic system pressure. The gauge shall be liquid filled to prevent gauge shock when the hydraulic system is energized. The liquid shall not be vulnerable to freezing in subzero temperatures.			
<b>591.0</b>	<b><u>3 MICRON HIGHPRESSURE FILTER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>591.1</b>	A 3-micron filter shall be installed in the output line of the hydraulic system, after the hydraulic pump.			
<b>592.0</b>	<b><u>EMERGENCY PUMP</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>592.1</b>	<p>The apparatus shall be equipped with one (1) emergency hydraulic pump electrically driven from the chassis battery system. The emergency pump shall be capable of providing adequate ladder functions to stow the aerial and stabilizers in the case of main hydraulic pump failure.</p> <p>Two (2) control Switches for this emergency pump shall be provided. One Switch shall be installed at the turntable control console and the stabilizer control station. The Switches shall be labeled EPU.</p> <p>Each control shall be a spring-loaded momentary Switch. A red indicator light shall be mounted adjacent to each Switch to indicate activation of the emergency pump.</p>			

<b>593.0</b>	<b><u>HYDRAULIC SWIVEL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>593.1</b>	<p>The aerial ladder shall be equipped with a swivel at the turntable. The Swivel shall connect the hydraulic lines from the hydraulic pump and reservoir to the aerial control bank at the turntable, above the point of rotation.</p> <p>The Swivel shall connect all the electrical circuits through the rotation point. A minimum of thirty-two (32) collector rings shall be provided. All collector rings shall be enclosed and protected with desiccant plugs to protect against condensation and corrosion. Due to the possibility of paint contamination and dirt attraction, units requiring oil or silicone to protect the collector rings shall not be acceptable.</p> <p>The Swivel shall allow for 360 degrees of continuous rotation of the aerial device with no loss of speed or capacity in functions.</p>			
<b>594.0</b>	<b><u>ANGLE INDICATOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>594.1</b>	<p>A liquid filled angle indicator shall be mounted on the base section of the ladder. The indicator shall give accurate elevation in degrees from 20 to +80 degrees in relation to level. The liquid shall be of proper viscosity and composition to remain in liquid form even when exposed to below-zero temperatures. Reading of the indicator shall be accomplished by observing the position of a suspended ball in relation to the degrees of elevation as marked on the indicator housing. The indicator shall be backlit for visibility in low light conditions.</p> <p>An additional angle indicator shall be on the fly section near the platform. The angle indicator shall be backlit for low light conditions.</p>			
<b>595.0</b>	<b><u>EXTENSION INDICATORS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>595.1</b>	<p>Numerals shall be applied to the inside of the handrail of the base section opposite the turntable control console. The numerals shall be at appropriate intervals indicating total aerial extension in 5-foot increments. A band on the first fly section shall align with these marks at the appropriate extension distance. The extension indicator color shall provide a high contrast with the color of the ladder section to which it is applied. This shall make the length of aerial extension easily readable by the operator by merely glancing at the indicators. Numerals indicating the length of extension shall be placed adjacent to indicating bands.</p>			

<b>596.0</b>	<b><u>MANUAL ROTATION DRIVE TOOL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>596.1</b>	As required by NFPA 1901, one (1) manual rotation drive tool shall be provided to rotate the turntable in the unlikely event of power loss. This drive tool shall be provided as standard equipment.			
<b>597.0</b>	<b><u>TORQUE BOX</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>597.1</b>	<p>A "torsion box" subframe shall be installed on the chassis frame rails, integral with the stabilizers. The torque box shall be constructed of steel plate. The steel plates shall have a minimum yield strength of 36,000 psi and ultimate tensile strength of 58,000 – 80,000 psi. The torque box subframe assembly shall be capable of withstanding all torsional and horizontal loads when the apparatus is supported by the stabilizers. The torque box shall be bolted in place to the chassis frame rails located directly behind the pump mount area and at the front of the rear stabilizer housing assembly.</p> <p>The torque box shall have a section modulus of 673.6 cubic inches and a resistance to bending moment of 24,249,188-inch pounds.</p> <p>The aerial torque box shall be painted with AkzoNobel High Solids polyurethane paint. The color shall be black.</p> <p>The torque Box will be adequately lit for nighttime operations.</p>			
<b>598.0</b>	<b><u>STEEL BODY MOUNT SUBFRAME</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>598.1</b>	<p>The main body mount subframe shall be constructed from a formed steel channel bolted and welded to the torque box. The subframe shall be located at the front and rear of each body section as well as in front and rear of the wheel well opening.</p> <p>The compartment area behind the rear axle shall be supported by a drop frame fabricated of steel tubes and angles. All drop frame structures shall be welded directly to the torque box to allow the body to be a separate structure from the chassis.</p>			

599.0	<b>FRONT AND REAR STABILIZERS</b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
599.1	<p>Two (2) sets of stabilizers shall be installed for stability. Each set of stabilizers shall have an 18' spread. Both sets shall be an extending box beam "H" style. To get the true stabilizer, spread, apparatus using measurements other than from each outside edge of the stabilizers shall not be considered acceptable.</p> <p>The front stabilizers shall be located directly behind the chassis cab, attached to the torque box, for maximum setup ability with minimal cab deflection, and to minimize the amount of loading transferred to the chassis frame. Designs that mount these stabilizers solely to the chassis frame shall be unacceptable due to the twisting force they impart on the chassis frame.</p> <p>The rear stabilizers shall also be integral to the torque box and shall be installed behind the rear axle of the apparatus.</p> <p>The stabilizers shall be double box design with jack cylinders that have a 5" internal diameter (bore) and a 2.5" diameter cylinder rod. The jack cylinders shall be equipped with integral holding valves, which shall hold the cylinder either in the stowed position or the working position, should a charged line be severed at any point within the hydraulic system.</p> <p>The steel used to build the stabilizer system shall have a minimum yield strength of 36,000 psi and ultimate tensile strength of 58,000 – 80,000 psi.</p> <p>Vertical jack cylinder rods shall be fully enclosed by a telescoping inner box to protect the cylinder rods, seal glands, and pistons against damage from nicks, abrasion, and chrome damage. All vertical stabilizer cylinders shall be removable from the top of the box tube. The inner double box system shall be further designed to stabilize the column load imparted upon the cylinder rod, thereby also protecting against damage that may occur from lateral loading possibly caused by side slopes, shifting or sliding of the apparatus on icy or unstable surfaces, sudden sinking of one or more jack pads, or on scene collision while the aerial device is deployed. Vertical stabilizers that require cylinders to be removed from the bottom, or have the vertical stabilizer cylinders exposed, shall not be acceptable.</p>			

599.2	<p>The stabilizers shall be connected to the hazard warning light circuit to warn the driver if they are not stowed when the chassis parking brake is released.</p> <p>Each extending style stabilizer shall have a polished stainless steel stabilizer cover. The cover shall be adjustable to allow for a proper fit.</p> <p>The stabilizers shall not include mechanical stabilizer pin locks, pin storage holders, or pin holes machined in the stabilizer extending beams.</p>			
600.0	<b><u>STABILIZER STROKE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
600.1	<p>The stroke of the stabilizers shall be a minimum of 25". The stabilizer pad shall be maintained at a stored height of approximately 12" to 15" (dependent on required ground clearance and angle of departure) resulting in a minimum ground penetration of 10" or greater.</p>			
601.0	<b><u>STABILIZER FINISH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
601.1	<p>The extending front/rear stabilizer beams, inner jack tubes, and stabilizer pads shall be shot blasted to remove any mill scale or contamination. The stabilizers shall be prepared to provide maximum protection for critical components. The outer tubes shall be finished with a water-based, high-quality, single-component acrylic primer. The primer color shall be flat black.</p>			
602.0	<b><u>WEAR PADS/BEARING SURFACES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
602.1	<p>Nylon wear pads impregnated with molybdenum disulfide and high in molecular weight shall be used between the stabilizer housing assembly and the extension tube for maximum smoothness of operation.</p> <p>Two (2) Nylon wear pads shall be installed in each stabilizer extension system. There shall be one wear pad located on the top back portion of the extension tube assembly that shall glide on the inner wall of the top housing tube wall. There shall be an additional pad located on the inner wall of the bottom housing tube wall that shall separate the bottom side of the extension tube and the bottom wall of the housing tube. The pads shall be installed in such a manner as to reduce friction for ease of operation and to reduce the amount of metal-to-metal contact.</p> <p>Each stabilizer down jack housing tube shall contain four wear pads, one (1) on each side of the tube.</p>			

<b>603.0</b>	<b><u>STABILIZER EXTENSION SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>603.1</b>	<p>Extension of the horizontal front beams shall be activated by dual extension cylinders, which shall each have a 2.50" internal diameter (bore) and a 1.5" diameter cylinder rod. The extension cylinders shall be totally enclosed within the extension beams to prevent damage to the rod and hoses. The extension beams shall be 8.00" x 10.00" x .375" wall steel tubing with a 1.50" steel plate welded to the top and a 1.50" steel plate welded to the bottom of each beam.</p> <p>Extension of the horizontal rear beams shall be activated by dual extension cylinders, which shall each have a 2.00" internal diameter (bore) and a 1.25" diameter cylinder rod. The extension cylinders shall be totally enclosed within the extension beams to prevent damage to the rod and hoses. The extension beams shall be 8.00" x 6.00" x .375" wall steel tubing with a .625" steel plate welded to the top and a .625" steel plate welded to the bottom of each beam.</p>			
<b>604.0</b>	<b><u>STABILIZER ANGLE LEVEL GAUGES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>604.1</b>	<p>One (1) manual angle level gauge shall be located on the rear of the apparatus. The gauge shall have a sight bubble that will measure the side-to-side angle of the apparatus in 2-degree increments.</p> <p>One (1) manual angle level gauge shall be located on the side of the apparatus, near the rear. The gauge shall have a sight bubble that will measure the fore-to-aft angle of the apparatus in 2-degree increments.</p>			
<b>605.0</b>	<b><u>ELECTRIC / HYDRAULIC STABILIZER CONTROLS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>605.1</b>	The stabilizer controls shall be located at the rear of the apparatus. Two (2) stations shall be installed, one (1) on each side at the rear, arranged so that the operator has a full view of the stabilizer being positioned. All stabilizer control functions shall be of the electric paddle joystick style. The controls shall be designed to allow stabilizers to be operated independently so that the vehicle may be set up in a restricted area or uneven terrain.			
<b>605.2</b>	An electrically actuated diverter valve shall be provided in conjunction with the stabilizer controls as a safety device. The diverter valve shall allow the hydraulic fluid to flow either to the stabilizer circuit or the turntable and ladder circuit.			

605.3	<p>A stabilizer deployment warning alarm, activated by stabilizer mode, shall be provided at each stabilizer to warn personnel. The warning alarm shall deactivate only when all stabilizers are in the load supporting configuration, or when the diverter switch is no longer in the stabilizer mode.</p> <p>The stabilizer controls shall each be accessible through a brushed stainless-steel door.</p>			
606.0	<b><u>GROUND CONTROL STATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
606.1	<p>A control station shall be located at the rear of the apparatus in an easily accessible area. The control panel shall be illuminated for nighttime operation. The following items shall be furnished at the control console, clearly identified and located for ease of operation and viewing:</p> <ul style="list-style-type: none"> <li>• Individual stabilizer down indicator lights</li> <li>• Aerial PTO engaged indicator light</li> <li>• High idle Switch with indicator light</li> <li>• Emergency hydraulic pump control with indicator light</li> <li>• Stabilizer/Aerial diverter control with indicator light</li> <li>• Side-to-side leveling bubble</li> </ul> <p>A weatherproof compartment shall be furnished behind the control panel and shall contain the aerial circuit breakers, interlock components, and control circuit distribution terminals. The control station shall be accessible through a brushed stainless steel door.</p> <p>The stabilizer controls and ground control station surfaces shall be fabricated from a solid core aluminum composite panel with double-sided painted aluminum outer surfaces bonded to a solid polyethylene core. They shall include a graphic overlay design.</p>			
607.0	<b><u>STABILIZER PLACEMENT LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
607.1	<p>There shall be four (4) HiViz (FTLZC24B) lights with blue (PCV8500B) covers. The lights shall be recessed into the sides of the body and shall provide focused blue lights on the ground that show where the outriggers will land during deployment and placement. Activation shall be from a button in the multiplex display.</p>			
608.0	<b><u>STABILIZER COVER WARNING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
608.1	<p>One (1) Whelen 600 Series Super LED flashing light shall be installed on each extending stabilizer cover panel, for a total of four (4). These lights shall be red in color and activated by the aerial master Switch and emergency master switch.</p>			



<b>609.0</b>	<b><u>STABILIZER ARM WARNING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>609.1</b>	Eight (8) Whelen 5G Series Super LED red flashing lights shall be mounted on the stabilizer beams. Each stabilizer beam shall include two (2) lights, one (1) facing forward and one (1) facing rearward. The lights shall be mounted inboard of vertical jack tubes. The warning lights shall be activated by the aerial master switch.			
<b>610.0</b>	<b><u>STABILIZER WORK LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>610.1</b>	Four (4) TruckLite round 6 Diode LED lights shall be provided, one (1) at each stabilizer location to illuminate the surrounding area. The lights shall be located under the stabilizer beams and activated by the aerial master switch.			
<b>611.0</b>	<b><u>WHEEL WELL STORAGE SLOTS / STABILIZER PAD STORAGE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>611.1</b>	Two (2) horizontal slots with hinged dropdown SS doors shall be installed in the forward wheel well area on each side, above each tandem wheel. Each slot shall hold two (2) 1" stabilizers. Two (2) compression latches shall be installed on each door to secure it in the closed position.  Two (2) horizontal storage pockets shall be provided in the rearward portion of the rear wheel wells. These areas shall be the same size as and shall match the stabilizer pad storage in the forward portions of the wheel wells but will be open areas for department-supplied items.			
<b>612.0</b>	<b><u>TURNTABLE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>612.1</b>	The turntable shall be designed in such a manner as to allow a generous working area, regardless of the position of the aerial, including when positioned at maximum elevation. The turntable shall also be designed to allow for the most efficient use of space on the apparatus body.  It shall be covered with Tread Grip Safe Deck pattern decking to allow the walking surface to shed liquids with ease and comply with NFPA intent, to provide secure footing for the operator in all weather conditions.  A downward lip shall "skirt" the turntable decking around the entire circumference to protect it from hazards.			

612.2	<p>All hoses and electrical lines shall be routed under removable covers to prevent a tripping hazard. The covers shall also be designed to prevent damage from occurring to these components. Likewise, the center of the turntable shall have a removable step cover to prevent tripping hazards as well as provide for an easier transition to the first rung of the aerial ladder.</p> <p>To prevent unnecessary added weight to the apparatus, the turntable shall not be built entirely from solid materials.</p>			
613.0	<b><u>TURNTABLE SAFETY</u></b>	YES	NO	EXCEPTIONS / NOTES
613.1	<p>The turntable shall be equipped with the following safety features:</p> <ul style="list-style-type: none"> <li>• Three (3) Knurled aluminum handrails at the openings.</li> <li>• Two (2) Man-Saver Bar restraints</li> <li>• Three (3) LED lights</li> </ul>			
614.0	<b><u>AERIAL PIVOT PINS</u></b>	YES	NO	EXCEPTIONS / NOTES
614.1	The aerial device pivot pins shall be located on the turntable and shall attach the aerial device base section to the turntable. To maintain a suitable safety factor, the pivot pins shall be composed of certified structural steel, thereby ensuring structural integrity.			
615.0	<b><u>AERIAL HOUR METER</u></b>	YES	NO	EXCEPTIONS / NOTES
615.1	There shall be an hour meter installed at the lower center control Station connected to the system engagement control for the aerial.			
616.0	<b><u>TURNTABLE CONTROL CONSOLE</u></b>	YES	NO	EXCEPTIONS / NOTES
616.1	<p>The turntable control console shall be located on the turntable, on the driver's side of the apparatus. The console shall be illuminated by an LED light with mounting clips for nighttime operation and have a hinged weather cover</p> <p>Three (3) handles for the ladder hydraulic functions (elevation, rotation, and extension) shall be installed at the control console. The function of each control lever shall be cast into the plate under the appropriate lever. The controls shall be capable of being operated independently or simultaneously with a gloved hand.</p> <p>A hinged door shall be provided on the front of the control console with a pop latch. A recessed work light shall be provided in the access door</p>			

616.2	<p>The following items shall be furnished at the console, clearly identified and located for ease of operation and viewing:</p> <ul style="list-style-type: none"> <li>• Elevation, Extension, and Rotation Controls</li> <li>• Lighted Push/Pull Button to Deactivate Hydraulic and Electrical System</li> <li>• Panel Light Mounted in Cover</li> <li>• Ladder Overload Warning Horn</li> <li>• Monitor Function Controls</li> <li>• Intercom with Controls</li> <li>• Operators Load Chart</li> <li>• Warning Signals</li> </ul> <p>To minimize the chance of failed components, turntable consoles requiring a fan to cool interior components shall not be considered acceptable.</p>			
617.0	<b><u>AERIAL LOGIC DISPLAY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
617.1	<p>The aerial shall be equipped with a color transmissive LCD located at the turntable control console. The display shall be viewable in direct sunlight and shall feature LED backlighting</p> <p>For protection against extreme environmental conditions, connections shall utilize 2 Amp seal 23 pin connectors AMP7706801 and AMP7706804. The display shall be capable of operating 40° C to +85° C and a minimum IP67 rating front and back. For maximum protection, the display case shall be constructed of Polycarbonate capable of random vibration, and shock.</p> <p>The display will gather ladder positional data from an array of sensors. This data will be displayed to the device operator. The rotation and elevation sensors will also be used to protect the body, cab, and installed components from collision damage caused by the aerial device.</p>			
618.0	<b><u>SYSTEM LOCK CONTROL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
618.1	<p>A push/pull systems engagement control shall be installed at the turntable control console. The control shall energize the hydraulic system for the ladder function and provide the flow of hydraulic fluid to the master valve bank. An automatic throttle Switch shall be attached to the systems engagement control that advances the engine speed to a preset RPM when the engagement control is in the "RUN" position. In the "LOCK" position, the engine speed shall return to the normal idle RPM and the hydraulic system be deenergized.</p>			

<b>619.0</b>	<b><u>LOAD SENSING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>619.1</b>	Indication for the load sensing system shall be programmed into the display panel at the turntable control console.			
<b>620.0</b>	<b><u>AERIAL PLATFORM LOAD CHARTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>620.1</b>	Two (2) station communication systems shall be provided between the aerial platform and the turntable control console. The communication system shall be a two-way system with the communication speaker at the platform requiring no operator attention to transmit or receive. The transmitting and receiving volume controls shall be located at the turntable control console.			
<b>621.0</b>	<b><u>TRACKING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>621.1</b>	There shall be two (2) FTWLX9SW, FireTech LED, tracking lights.  The "Tracking Lights Switch" shall be located in Platform Control Station			
<b>622.0</b>	<b><u>MID MOUNT PLATFORM DESIGN AND CONSTRUCTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>622.1</b>	The platform frame shall be constructed of certified extruded aluminum tubing and certified plate as a minimum. The construction of the platform frame shall be modular, with each module being welded in fixtures to ensure tight tolerances, prevent warpage, and eliminate excessive annealing. To account for a maximum working area inside of the platform, any design having less than 18 square feet of working area shall not be considered acceptable.  Platforms that are not of modular construction shall not be acceptable due to extreme warpage during welding (causing base material damage and poor component fit).  Additionally, the inability to replace a portion of the platform should it become damaged during rescue/firefighting operations.			
<b>622.2</b>	When completed, the individual modules shall be assembled with certified structural fasteners.  The finished assembly shall be attached to the aerial ladder in a manner that shall be easily replaceable should it become damaged.			

622.3	Heavy duty, extruded rubber bumpers shall be provided on the underside of the platform frame for safe "landing" on rooftops or the ground.  This style of platform shall be able to accommodate a single monitor.			
623.0	<b><u>PLATFORM DECK SURFACE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
623.1	The floor of the platform shall be aluminum grating with an aggressive serrated surface. This decking shall provide excellent footing in all environments and working conditions. Simple bar-type grating or tread plates shall not be acceptable because they become slippery under many conditions or do not sufficiently shed liquids.  To provide a maximum working surface for victim rescue, the aggressive decking shall extend outside of the enclosed portion of the platform a minimum of 6" on the sides and 10" on the front. The front and side leading edges of the platform shall be protected by a heavy-duty, "D" type extruded rubber bumper.  The decking shall be of a design that shall allow debris to fall through to the anodized aluminum heat shield underneath. This design shall prevent debris from interfering with operator footing yet shall prevent the debris from falling below the platform.			
624.0	<b><u>PLATFORM DECK WORK LIGHTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
624.1	Mini LED lights shall be installed for platform deck working lights. The lights shall provide adequate lighting within the platform to illuminate the entire floor area during nighttime operations. The lights shall be hooded to direct all light downward and shall automatically energize anytime the aerial system is activated. The lights shall be installed inside of the platform in such a manner to prevent damage during operation by moving or shifting equipment on the platform.			
625.0	<b><u>PLATFORM ACCESS GATES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
625.1	Two (2) gates shall be supplied at the front of the platform. Each gate has a positive latching mechanism that can be operated from inside or outside of the gate. The gates shall swing in to enter the platform and shall close automatically. All hinges shall be a stainless-steel adjustable spring-loaded hinge.			

625.2	<p>A swinging door shall be installed at the rear of the platform that will allow personnel to climb the ladder located at the driver's side rear of the body to enter the platform.</p> <p>Each gate shall be capable of withstanding 1000 pounds of force applied in the least favorable position and the least favorable direction, without opening outward.</p>			
626.0	<b><u>PLATFORM CONTROL STATION WITH JOYSTICK CONTROLLER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
626.1	<p>The platform control console shall be located at the driver's side rear corner of the platform. The control station shall be constructed of smooth aluminum and shall be painted to match the rest of the platform.</p> <p>The elevation, extension/retraction, and rotation functions shall be controlled at the platform control console by a joystick. The joystick shall give up, down, left, right, extend, retract, and rotational functions. There shall also be a positional speed control feature on the joystick. The joystick control shall be integrated into and permanently mounted to the control console horizontally. Each item provided on the console not labeled by the manufacturer shall be provided by the OEM.</p> <p>A minimum of one (1) control panel illumination LED light shall be provided to illuminate the control console during nighttime operations. The light shall be mounted above the panel surface to cast maximum illumination onto the panel surface. The lights shall be hooded so that all light is directed toward the panel and not at the operator.</p> <p>All wiring and hoses shall be routed in such a manner that there shall be no possibility of being snagged or damaged by the operator or occupants during operations.</p>			

626.2	<p>Controls within the platform area shall include:</p> <ul style="list-style-type: none"> <li>• Elevation, extension, and retraction controls (single joystick controller)</li> <li>• Platform safety override leveling button and light</li> <li>• Water curtain control</li> <li>• Load Minder readout with alarm</li> <li>• One (1) hooded control station panel illumination LED light</li> <li>• Monitor function controls</li> <li>• Intercom</li> <li>• Warning decals</li> <li>• Three (3) position speed selector switch (On the joystick)</li> <li>• Light Switch, if applicable</li> </ul>			
627.0	<b><u>SHIFT ON THE FLY" PLATFORM SPEED SELECTOR SWITCH</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
627.1	<p>A "Shift on The Fly" speed selector Switch shall be located on the joystick. This speed selector shall provide the operator in the platform with unmatched operation capabilities for use during all situations and operations.</p> <p>The Switch shall have three (3) positions consisting of high, medium, and low speed settings. By positioning the "Shift on The Fly" speed selector in one of these three positions, the speed of the aerial functions may be finitely controlled, and quickly and safely changed from the platform control station.</p>			
628.0	<b><u>POSITION 1</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
628.1	"High" This position allows the platform to operate at the maximum allowable speed setting of each aerial function.			
629.0	<b><u>POSITION 2</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
629.1	"Medium" This position allows the platform to operate at approximately 50% of the maximum allowable speed setting of each aerial function.			
630.0	<b><u>POSITION 3</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
630.1	"Low" This position allows the platform to operate at approximately 15% of the maximum allowable speed setting of each aerial function.			
631.0	<b><u>"SHIFT ON THE FLY" OPERATIONS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
631.1	While the platform is moving in any direction at any speed, the operator may choose to "Shift on The Fly" to a different speed; either slower or faster, without having to stop platform movement or "feather" a control.			



631.2	<p>Additionally, the "Shift on The Fly" design allows less experienced operators to be more consistent and perform safer operations since they need not become accustomed to "feathering" the joystick control to achieve differing speeds. Instead, they need only fully actuate the joystick and then utilize the "Shift on The Fly" feature.</p> <p>Design that requires the operator to rely solely on "feathering", the function control handle in the platform to change the speed of any function, shall be unacceptable.</p> <p>No Exceptions shall be allowed to this design in the interest of operator safety and enhanced platform operation capabilities.</p>			
632.0	<b><u>AERIAL INFORMATION DISPLAY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
632.1	One (1) display shall be located at the platform control console.			
633.0	<b><u>PLATFORM CONTROLS SYSTEM LOCK</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
633.1	A platform control system lock shall be provided at the platform control console. The platform control system lock Switch shall be a push/pull systems engagement control. The control shall disable the platform controls at the platform control console but continue to allow platform and aerial ladder movement from the turntable control console.			
634.0	<b><u>AUTO RAMP PLATFORM CONTROL</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
634.1	<p>Platform elevation, extension, and rotation function controls in the platform shall be equipped with an electric "Auto Ramp" feature. This ramping feature shall allow the operator in the platform to engage the controls abruptly without resulting in "tip lash" or sudden jerking of the platform.</p> <p>When one of the above controls is engaged or disengaged abruptly; the hydraulic pressure shall "Auto Ramp" up or down to the speed the function level is being held at, thus providing a smooth transition from start to stop or stop to start. No Exception shall be allowed to this design in the interest of operator safety.</p> <p>The "Auto Ramp" feature additionally shall aid less experienced operators in safely and successfully operating the platform.</p>			

<b>635.0</b>	<b><u>FALL PROTECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>635.1</b>	Additionally, two (2) or more chrome grab handles shall be provided in the rear opening of the platform to aid in the transition. A minimum of four (4) heavy-duty "D" rings shall be installed on the platform to allow the attachment of safety belts/fall protection equipment. The rings shall be installed in a manner to allow occupants in any location within the platform to be safely anchored.			
<b>636.0</b>	<b><u>AUTOMATIC EXTENDING PLATFORM EGRESS HANDRAILS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>636.1</b>	<p>Automatically extending handrails shall be provided between the rear entrance to the platform and the tip of the fly section. These handrails shall be constructed of a minimum of 1 1/4" tubing and shall be covered full length with deeply serrated rubber sheathing for maximum grip in all environments.</p> <p>The handrails shall effectively maintain a plane consistent with the fly section handrails as the aerial platform is elevated and extended and shall serve to aid in the transition to and from the platform, by extending the handrails of the fly section to meet the rear of the platform. To provide the maximum amount of safety for personnel entering and exiting the platform, handrails that are attached only to the platform or the fly section, and not both, will not be considered acceptable.</p>			
<b>637.0</b>	<b><u>PLATFORM HEAT SHIELDING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>637.1</b>	The rear, sides, front, front gates, and the entire underside of the platform shall be covered with smooth anodized aluminum sheet material to act as heat shields and protect platform occupants. The heat shields shall also serve to protect the platform structure from excessive heat exposure by reflecting heat energy and inhibiting heat transfer from the shields to structural members due to the spacing between the shields and the structure.			
<b>637.2</b>	The heat shields shall be attached to the platform utilizing stainless steel fasteners. The fasteners shall be installed with protective nylon washers with shoulders. This design shall allow easy removal and replacement of any heat shield should it become damaged during rescue/ firefighting operations.			

637.3	<p>Designs that allow "permanent" attachment of the heat shields shall not be acceptable for the above reason. "Permanent" shall be defined as rivets, welding, or integral with the platform in any way.</p> <p>To further protect from any heat below the platform, a water curtain nozzle with a circular pattern shall be mounted in the center of the underside of the platform. This device shall be electrically actuated from the platform control station and provide a minimum of a 75 GPM spray.</p> <p>Additionally, the heat shields on the underside of the platform shall serve to prevent debris or small equipment that has passed through the serrated aluminum grating decking from falling from the platform. This design shall keep the debris from interfering with operator footing.</p> <p>The heat shield shall be designed to allow for easy cleaning with a water hose or spray nozzle without having to remove the shields to clean their top sides.</p>			
638.0	<b><u>PLATFORM LEVELING SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
638.1	<p>An electronic over hydraulic platform leveling system shall be installed, self-contained within the platform. The system shall electronically monitor the position of the platform relative to the earth and not the position of the apparatus should it be sitting on uneven ground. Each leveling cylinder shall contain two (2) counterbalance valves to assure equal distribution of load. A failsafe system shall freeze the position of the platform if it should become more than four degrees out of level with the earth for 2 seconds. This system shall prevent the platform from tipping forward in an unlikely event such as a hydraulic line break or electrical system malfunction.</p> <p>An override button shall be provided to allow the operator to reset the platform and regain control of all functions.</p>			
639.0	<b><u>LOAD LIFTING EYES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
639.1	Two (2) load-lifting eyes shall be installed on the underside of the platform. The eyes shall be sufficiently spaced to allow even balancing of a load. The eyes, as a pair, shall be rated not to exceed the tip load of the ladder structure.			
639.2	Permanently attached aluminum alloy labels shall be installed adjacent to the eyes. The labels shall state the rated capacity of the eyes. The information on the labels shall be professionally engraved or stamped into the label for lasting quality.			

<b>640.0</b>	<b><u>PLATFORM EQUIPMENT STORAGE BOX</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>640.1</b>	<p>An equipment storage box shall be provided on the platform. The storage box shall be painted to match the existing platform structure. The box shall be located on the rear / outside walls of the platform. The box shall be suitable for storage of tools and air masks/equipment.</p> <p>There shall also be an Axe Mounting Bracket located on the platform with a Pickhead axe provided.</p>			
<b>641.0</b>	<b><u>MID MOUNT PLATFORM MARKER LIGHTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>641.1</b>	A minimum of three (3) red LED marker lights shall be installed on the front of the platform to provide additional marker light capabilities. These lights shall be required when the standard marker lights on the rear of the body are blocked by the platform.			
<b>642.0</b>	<b><u>PARAPET GROUND LADDER ATTACHMENT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>642.1</b>	<p>A removable ground ladder attachment mechanism shall be provided. This mechanism shall provide a temporary attachment for a 14' or shorter certified ground ladder to aid the department in clearing a parapet wall.</p> <p>The mechanism shall be designed to minimize interference with other platform components such as monitors, nozzles, and swing-out gates. The design shall utilize the insertion of two (2) solid shaft pins inserted through the hollow rungs of the ground ladder.</p> <p>For maximum security, the ground ladder shall rest within the attachment mechanism at two (2) points, near the height of the platform handrails and near the platform floor area.</p>			
<b>643.0</b>	<b><u>PLATFORM-LED WARNING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>643.1</b>	Four (4) LED lights shall be installed on the platform. The LED lights shall be installed one on each side of the platform and two on the front of the platform. The LED lights shall be red in color and flash any time the parking brake is released, and the emergency master has been activated. All LED lights shall be wired through the aerial device switch.			
<b>644.0</b>	<b><u>HIVIZ LED TIP LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>644.1</b>	<p>There shall be two (2) FireTech HiViz, model FTWLX20-FTW combination spot/flood LED lights installed. They shall be installed on both sides of center on the front of the platform.</p> <p>Each light shall have a white housing.</p>			

<b>645.0</b>	<b><u>TOMAR LOCATOR LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>645.1</b>	<p>Two (2) Tomar MICRO IV self-controlled blue strobe locator lights shall be provided. The lights shall be activated by the aerial master Switch.</p> <p>The lights shall be located at the lower rear portions of the aerial platform, one (1) on each side of the platform structure.</p>			
<b>646.0</b>	<b><u>WHELEN PIONEER PLUS LANDING LIGHTS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>646.1</b>	<p>Two (2) Whelen Pioneer Plus PFP2 recessed landing lights shall be installed and partially recessed into the underside of the platform. The lights shall aid the operator when "landing" the platform on a surface by clearly illuminating the area under the platform. Each housing shall incorporate internal heat-dissipating fins.</p> <p>Each lamp head shall have, a dual lamp, 120AC, 1.25 amps, 150 watts, 11,000 usable lumens, and the housings shall be powder coated white. The floodlights shall be UL listed as scene lights for fire service use.</p>			
<b>647.0</b>	<b><u>HIVIZ 120V TELESCOPING LIGHT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>647.1</b>	<p>Two (2) HiViz FT-SL-15-FT-110-SW-W, 120-volt telescoping lights shall be installed on the apparatus. The light shall have an output of 15,000 lumens and have a white housing. Each light shall have an on/off switch on the light head. One light shall be mounted on each side of the platform.</p> <p>The light shall be complete with one (1) Whelen Pioneer 3000 series side mount top adjust pullup pole. The pole shall have a 12" outer body and custom length silver pole assembly with a 3C Internal input. The pole shall have a white powder coat finish.</p> <p>The lights shall be located on the rear face of the back wall of the aerial platform, one (1) on the driver's side and one (1) on the officer's side.</p>			

<b>648.0</b>	<b><u>WATERWAY SYSTEM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>648.1</b>	<p>A waterway system shall be provided consisting of the following components and features:</p> <p>A 5" outside diameter pipe shall be connected to the water supply on one end and to a water swivel at the rotation point of the turntable. The Swivel shall allow the ladder to rotate 360 degrees continuously while flowing water.</p> <p>A 4" inside diameter pipe waterway shall be routed through the rotation point Swivel up to the heel pin Swivel. The heel pin Swivel shall allow the water to flow to the waterway while elevating the aerial ladder from 12 degrees below to +72 degrees above horizontal.</p> <p>The heel pivot pin shall not be integral with the waterway Swivel at any point. The design of the waterway shall allow complete servicing of the waterway Swivel without disturbing the heel pivot pin.</p>			
<b>649.0</b>	<b><u>WATERWAY PIPE DIAMETERS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>649.1</b>	The integral telescopic waterway system shall consist of a 5 1/2" outside diameter steel pipe in the base section, a 5" diameter pipe in the second section, a 4 1/2" outside diameter pipe in the third section, a 4" outside diameter pipe on the fourth section, and a 3 1/2" outside diameter in the fly section.			
<b>650.0</b>	<b><u>CHROME PLATED WATERWAY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>650.1</b>	<p>The telescopic waterway shall be composed of high-quality steel.</p> <p>Each pipe shall then be prepared to be heavily chrome plated. Materials (nickel/copper/ chrome) used in the chrome plating process shall be of the highest purity to complete the chrome plating process. The chrome shall be polished to an extremely high luster.</p> <p>The waterway on the base section of the aerial device shall be completely covered utilizing AkzoNobel paint of job color.</p>			
<b>651.0</b>	<b><u>WATERWAY RELIEF VALVE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>651.1</b>	A 3/4" safety relief valve shall be installed in the base section waterway. The relief valve shall be preset at 240 psi. The valve shall protect the waterway from overpressure, which is normally caused by the capping of the monitor outlet. This valve in no way is to act as a relief for the total flow of the system.			

<b>652.0</b>	<b><u>WATERWAY DRAIN VALVE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>652.1</b>	A 1 1/2" drain valve shall be installed in the lower section of the aerial plumbing under the apparatus. The valve, when opened, shall drain the aerial waterway and lower plumbing.			
<b>653.0</b>	<b><u>AERIAL WATERWAY INLET</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>653.1</b>	<p>A 5" inlet, with 5" plumbing, shall be installed on the officer's side pump panel of the apparatus to be used for supplying the aerial waterway.</p> <p>One (1) Kocheck 5" FNH x 5" Storz 30 Degree RL Black Powder Coat Elbow 5" Storz Cap</p> <p>There shall be one (1) South Park, model IL35S30AC, 5" NPT X 5" NST, chrome, waterway adapter bushing with screen provided.</p> <p>There shall be one (1) Kocheck, model SKE55R, 5" Female NH Swivel rocker lug x 5" Storz 30° elbow adapter provided.</p> <p>There shall also be one (1) Kocheck model CC507, 5" Storz blind cap with the chain provided.</p> <p>The adapter and cap shall be lightweight aluminum with a black Powder Coat finish.</p>			
<b>654.0</b>	<b><u>AKRON BRASS MANUAL PLATFORM MONITOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>654.1</b>	<p>An Akron 3432 manual platform monitor shall be mounted on the front of the platform. The monitor shall utilize a full 3" waterway with casting turning vanes in each elbow and shall have a max flow of 1250 GPM. It shall have a 3" flange inlet with a 2 1/2" threaded outlet and all Pyrolite construction. The monitor shall have 180 degrees of rotation and 210 degrees of elevation for both stow and deployed positions and the deployed position shall have a lower elevation angle of 120 degrees. The stow dimensional envelope shall not exceed 21 1/2"H x 16" W x 22"L and the deployed envelop shall not exceed 22" H x 16"W x 19L. The monitor shall have grease fittings for both rotation and elevation joints and a brake knob for each joint. The stow/deploy locking mechanism shall have a positive spring-loaded locking pin. The monitor shall have a tiller bar control for rotation and elevation movement.</p>			



<b>655.0</b>	<b><u>MONITOR COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>655.1</b>	<p>The monitor shall be powder-coated Akron Red, AkzoNobel Interpon PG000QF, by the monitor manufacturer and shall not be repainted by the OEM.</p> <p>Stacked Tips (Quad) and Stream Shaper, Akron, 2499, 3485</p> <p>One (1) Akron Brass, model 34854002, mini stream shaper shall be provided. The shaper shall be constructed of Extruded aluminum, have a 2 1/2" NH rocker lug female inlet, a 2 1/2" NH male outlet and shall have tapered o set fins for improved stream performance. It shall not exceed 4" in length or 2 lbs. in weight.</p> <p>One (1) set of Akron Brass, model 2499, quad stacked tips shall be provided. The tip shall be constructed of Pyrolite, have a 2 1/2" NH slotted female inlet, machined protection rings on the discharge ends, 2", 1 3/4", 1 1/2", and 1 3/8" recessed orifices for protection. The tips shall not exceed 16 7/8" in length or 27/8 lbs. in weight.</p>			
<b>656.0</b>	<b><u>2 1/2" PLATFORM DISCHARGE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>656.1</b>	<p>One (1) 2 1/2" discharge shall be located at the front of the platform. The discharge shall be controlled at the platform by a quarter-turn ball valve.</p> <p>Cap, 2 1/2" NH, Chrome, One (1) 2 1/2" NH thread rocker lug chrome plated vented cap, complete with cable or chain, shall be provided.</p>			
<b>657.0</b>	<b><u>STREAM SHAPER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>657.1</b>	<p>One (1) Akron Brass, model 34854002, mini stream shaper shall be provided. The shaper shall be constructed of Extruded aluminum, have a 2 1/2" NH rocker lug female inlet, a 2 1/2" NH male outlet, and shall have tapered offset fins for improved stream performance. It shall not exceed 4" in length or 2 lbs. in weight.</p> <p>One (1) set of Akron Brass, model 2499, quad stacked tips shall be provided. The tip shall be constructed of Pyrolite, have a 2 1/2" NH slotted female inlet, machined protection rings on the discharge ends, 2", 1 3/4", 1 1/2", and 1 3/8" recessed orifices for protection. The tips shall not exceed 16 7/8" in length or 2 7/8 lbs. in weight.</p>			

<b>658.0</b>	<b><u>PLATFORM RAPPELLING ARM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>658.1</b>	<p>One (1) 500 lb. capacity rappelling arm shall be provided on the aerial platform. The arm shall be capable of folding into a stored position yet remain permanently attached to the platform for safety reasons. To maintain a rigid, safe structure; the arm itself shall not have any hinging on its structural members. The arm shall be equipped with two (2) rappelling eyes to attach rappelling gear. Detachable arms that require the operator to physically install them for operation shall be unacceptable, regardless of design, for safety reasons.</p> <p>The arm shall be permanently mounted and utilize a spring-loaded, locking pivot. When pivoted into a working position, the arm shall automatically lock into that position. When the arm is in the stowed or operational position, it shall not interfere in any manner with the operation of the monitor(s), spotlights, or platform gates.</p>			
<b>659.0</b>	<b><u>RUNG LIGHT ACTIVATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>659.1</b>	The blue rung lighting shall activate with the aerial master function.			
<b>660.0</b>	<b><u>RUNG ILLUMINATION LIGHTING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>660.1</b>	<p>The aerial ladder sections shall be equipped with permanently installed blue LED rung illumination lights. The lights shall be mounted on the inside of the ladder sections, facing inward; on each aerial section in a "staggered" configuration.</p>			
<b>661.0</b>	<b><u>AERIAL LADDER SIGNS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>661.1</b>	<p>One (1) sign panel measuring 16" tall x 133" long shall be installed on the driver-side base section of the aerial ladder. The sign panel shall be fabricated of a 1/8" aluminum plate. The sign shall be large enough to accept a maximum lettering size of 12" high.</p>			
<b>662.0</b>	<b><u>STOKES BASKET STORAGE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>662.1</b>	An extended Stokes Basket Storage shall be supplied on the officer's side of the base section. There shall be two lids, one for the rearward section for the stokes basket, and one on the forward leftover portion for department-supplied items. Lettering shall be applied directly to the storage box to match the lettering on the driver-side ladder sign.			

<b>663.0</b>	<b><u>BASE SECTION MOUNTED ROOF LADDER</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>663.1</b>	<p>One (1) roof ladder mounting bracket set shall be provided on the outside of the aerial base section, on the driver's side, for a solid beam roof ladder.</p> <p>One (1) DuoSafety, model 775DR, 14' aluminum roof ladder with roof hooks on each end shall be provided.</p>			
<b>664.0</b>	<b><u>FLY SECTION MOUNTED PIKE POLE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>664.1</b>	<p>One (1) pike pole mounting bracket shall be provided on the driver's side of the aerial fly section. A strap shall be provided to hold the pike pole in the bracket.</p> <p>Pike Pole (1), Fire Hooks Unlimited, 10' Ash Core, New York Hook W/ Ram Knob, NYFG10</p> <p>One (1) Fire Hooks Unlimited, model NYFG10, 10' ash core pike pole with a New York Hook and ram knob end shall be provided</p>			
<b>665.0</b>	<b><u>UNDERCOATING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>665.1</b>	The apparatus shall undergo a twostep undercoating process.			
<b>666.0</b>	<b><u>BED LINER THERMOPLASTIC COATING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>666.1</b>	In designated areas, a textured surface, multipurpose material designed for commercial and industrial applications. It shall adhere to the body and serve as a protective, abrasion-resistant liner where applied.			
<b>667.0</b>	<b><u>BODY PAINT PREPARATION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>667.1</b>	<p>The apparatus body and components shall be metal finished as follows to provide a superior substrate for painting:</p> <ul style="list-style-type: none"> <li>• All aluminum sections of the body shall undergo a thorough cleaning process, starting with a phosphoric acid solution to begin the etching process, followed by a complete rinse. The next step shall consist of a chemical conversion coating applied to seal the metal substrate and become part of the aluminum surface for greater film adhesion.</li> <li>• After the cleaning process, the body and its components shall be primed with a high solids primer and the seams shall be caulked.</li> <li>• All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be heavily chrome plated. Iron fittings shall be copper underplated before chrome plating.</li> </ul>			

<b>668.0</b>	<b><u>PAINT PROCESS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>668.1</b>	<p>The painting process shall follow the strict standards as set forth by AkzoNobel Guidelines.</p> <p>The body shall go through a three-stage paint process: primer coat, base coat (color), and clear coat. In the first stage of the painting process, the body shall be coated with primer to achieve a total thickness of 24 mills. In the second stage of the painting process, the body shall be painted with BTLV650 High Solids Polyurethane Base Coat. At a stage of the painting process, the body shall be painted with a Clear Topcoat. A minimum of two to three coats shall be applied to achieve a total dry film thickness of 23 mills.</p> <p>As part of the curing process, the painted body shall go through a Force Dry / Bake Cycle process. The painted components shall be baked at 185 degrees for 3 hours to achieve a complete coating cure on the finished product.</p>			
<b>669.0</b>	<b><u>HAND POLISHED</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>669.1</b>	<p>After the Force Dry / Bake Cycle and ample cooldown time, the coated surface shall be sanded using 3M 1000, 1200, and/or 1500 grit sandpaper to remove surface defects.</p> <p>In the final step, the surface shall be buffed with a 3M super-duty compound to add extra shine to the coated surface. No more than .5 mil of clear shall be removed in this process.</p>			
<b>670.0</b>	<b><u>BODY PAINT COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>670.1</b>	The body shall be painted with AkzoNobel High Solids Polyurethane Base Coat. The single-tone body shall be painted AkzoNobel #31841 red.			
<b>671.0</b>	<b><u>AERIAL COMPONENT PROTECTION / PAINT</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>671.1</b>	All aerial device components above the rotation point that are not chrome plate, bright aluminum tread plate, or stainless steel shall be painted. The components shall be primed and finish painted with a high gloss polyurethane paint. The support structure and components below the rotation point shall be painted black.			
<b>672.0</b>	<b><u>AERIAL PLATFORM PAINT COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>672.1</b>	The aerial platform shall be painted with AkzoNobel High Solids polyurethane enamel paint. The color shall be AkzoNobel #41876 white. The front platform doors shall be unpainted anodized aluminum with a silver, brushed finish.			
<b>673.0</b>	<b><u>AERIAL LADDER SIGN PAINT COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>673.1</b>	The aerial ladder signs, mounted on the base section, shall be painted the same color as the aerial ladder.			

<b>674.0</b>	<b><u>AERIAL DEVICE PAINT COLOR</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>674.1</b>	The aerial device shall be painted with AkzoNobel High Solids polyurethane enamel paint. The color shall be AkzoNobel #41876 white.			
<b>675.0</b>	<b><u>AERIAL CORROSION PROTECTION</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>675.1</b>	<p>Internal structural members of the aerial structure shall be 100% concealed from oxygen or have corrosion protection applied. Totally sealed members are not subject to the possibility of corrosion attacking the metal from the interior.</p> <p>The structural tubing of the aerial structure that contains drilled holes or is exposed to outside air and elements shall be protected to eliminate the possibility of corrosion occurring on the inside of the tube. No exceptions, as this is imperative to the strength and integrity of the aerial structure.</p> <p>The interior of exposed tubing shall be coated with a compound labeled NWAC 1204. The application of the coating shall be applied after the welding process of the aerial structure is complete and shall cover 100% of the interior of the structural tube. NWAC 1204 is an effective cavity corrosion inhibitor that provides long-term protection for both ferrous and nonferrous metals. The resulting water-repellent, flexible, airdried film has crevice penetrating, spreading, and clinging characteristics. The product dries to a nearly transparent film and provides maximum corrosion protection for all void spaces subject to humidity and condensation.</p>			
<b>676.0</b>	<b><u>GOLD LEAF LETTERING 8"</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>676.1</b>	Up to sixty (60) 22KT gold leaf letters shall be provided and installed on the apparatus. The letters shall be approximately 8" tall with a black outline and shadow.			
<b>677.0</b>	<b><u>REFLECTIVE LETTERING 3"</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>677.1</b>	Up to ten (10), reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 3" tall with a black outline and shadow.			
<b>678.0</b>	<b><u>REFLECTIVE LETTERING 6"</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>678.1</b>	Up to ten (10), reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 6" tall with a black outline and shadow.			
<b>679.0</b>	<b><u>REFLECTIVE LETTERING 10"</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>679.1</b>	Up to ten (10), reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 10" tall with a black outline and shadow.			

<b>680.0</b>	<b><u>REFLECTIVE LETTERING 12"</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>680.1</b>	Up to twenty-five (25), reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 12" tall with a black outline and shadow.			
<b>681.0</b>	<b><u>REFLECTIVE LETTERING 18"</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>681.1</b>	Up to four (4) reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 18" tall with a black outline and shadow.			
<b>682.0</b>	<b><u>REFLECTIVE LETTERING 24"</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>682.1</b>	Up to thirty-eight (38), reflective letters shall be provided and installed on the apparatus. The letters shall be approximately 24" tall with a black outline and shadow.			
<b>683.0</b>	<b><u>REFLECTIVE STRIPING FRONT CAB</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>683.1</b>	The retroreflective stripe located on the sides of the apparatus shall wrap around the front of the chassis cab and terminate at the chassis grill.			
<b>684.0</b>	<b><u>PAINT BREAK LINE</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>684.1</b>	22KT engine turned gold leaf striping shall be installed at the two-tone paint break on the apparatus.			
<b>685.0</b>	<b><u>REFLECTIVE STRIPING</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>685.1</b>	Striping shall be applied to the exterior of the apparatus and shall conform to the reflectivity requirements in accordance with NFPA 1901, The striping shall consist of:  6" retroreflective stripe  The striping shall be low across the front of the chassis and along the sides, staying below the tops of the wheel well areas.  The main stripe shall be white.			
<b>686.0</b>	<b><u>REFLECTIVE STRIPING STABILIZER BEAMS</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>686.1</b>	Retroreflective striping shall be installed on the front and rear sides of the four (4) horizontally extending stabilizer beams for increased visibility when extended. The striping shall be 4" wide and white in color.			
<b>687.0</b>	<b><u>REFLECTIVE STRIPING – PLATFORM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>687.1</b>	Retroreflective striping shall be applied to the exterior of the platform. The striping shall be applied to the sidewalls and the front access gates. The striping on the platform shall be of the same type provided on the body and shall be red in color. The striping shall run straight along the platform.			

<b>688.0</b>	<b><u>CHEVRON COLOR RED/FLUORESCENT YELLOWGREEN</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>688.1</b>	<p>The chevron striping shall consist of red, 3M part number 1172 EC, and fluorescent yellow-green, and shall meet the chevron color requirements in accordance with NFPA 1901, current edition.</p> <p>Only 3M Diamond Grade VIP Reflective Striping shall be used. 3M Diamond Grade VIP Reflective Striping is a wide-angle prismatic lens reflective sheeting designation to produce durable traffic control signs and delineators that are exposed vertically in service. If something other than 3M is being used, third-party documentation must be provided with the bid to prove it is compliant with Federal DOT and NFPA 1901, current edition.</p>			
<b>689.0</b>	<b><u>CHEVRON STRIPING REAR BODY</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>689.1</b>	<p>Retroreflective striping shall cover at least 50% of the rear-facing vertical surfaces in accordance with NFPA 1901, current edition. The striping shall be in a chevron pattern sloping downward and away from the centerline of the apparatus at an angle of 45 degrees. Each stripe shall be a minimum of 6" in width. The striping shall consist of a solid base layer of reflective material and alternate between the exposed base layer material and durable, transparent, acrylic-colored film.</p> <p>The chevron pattern shall include the rear face of the body. The torque box shall be excluded from the chevron reflective striping.</p> <p>The upper body side "Fire Rescue" striping/verbiage shall be installed. This is white reflective to match the lower striping package.</p>			
<b>690.0</b>	<b><u>REFLECTIVE DECALS – CUSTOM</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
<b>690.1</b>	<p>Two (2) custom door reflective decals shall be provided. The decals shall be approximately 14" high and 14" wide.</p>			



691.0	<b><u>WARRANTIES</u></b>	<b>YES</b>	<b>NO</b>	<b>EXCEPTIONS / NOTES</b>
691.1	<ul style="list-style-type: none"> <li>· General Limited Warranty</li> <li>· Body Structure Limited Warranty</li> <li>· Aerial Ladder Structure Limited Warranty</li> <li>· Aerial Leak Free Hydraulics Limited Warranty</li> <li>· Aerial Waterway Limited Warranty</li> <li>· Electrical Limited Warranty</li> <li>· Plumbing and Piping Limited Warranty</li> <li>· Warranty, Water Tank, UPF, Standard Lifetime</li> <li>· Paint and Finish Limited Warranty</li> <li>· Warranty, Pump, Waterous, Standard.</li> </ul> <p>A copy of the warranties for the chassis, pump, body, paint, water tank (if applicable), aerial device, waterway, and waterway seals shall be furnished with each bidder's proposal.</p>			