Request for Proposal

WOL007-2025

95 - PLATFORM LADDER TRUCK

March 2025

DETAILED APPARATUS SPECIFICATIONS

95-PLATFORM

WOLFVILLE FIRE DEPARTMENT

March 2025

95-PLATFORM LADDER TRUCK

The Town of Wolfville will be accepting tenders for one (1) new 95-Platform Ladder Truck.

Questions regarding the RPF can be emailed to Fire Todd Crowell, tcrowell@wolfville.ca

Proposals must be received by **3:00 p.m., local time, Thursday, April 17, 2025.**

Tenders must be submitted in a sealed envelope clearly marked **"WOL007-2025–Firefighting & Rescue Apparatus** and delivered to:

The Town of Wolfville
359 Main Street
Wolfville, Nova Scotia
B4N 1A1

Attn: Todd Crowell
Fire Chief

The Town reserves the right to reject any or all proposals, not necessarily accept the lowest proposal, or accept any proposal which it may consider to be in its best interests. The Town of Wolfville also reserves the right to waive formality, informality, technicality on any proposal.

GENERAL INSTRUCTIONS

1. All bids shall be submitted on the tender forms supplied with the document.
2. The Town of Wolfville considers that all suppliers act in good faith and intend to supply equipment and services of high quality.
3. The Town of Wolfville will not accept any equipment or material that is inferior to or substituted for factory supplied products.
4. This request for proposal is not intended to exclude standard equipment or materials except where specified.
5. Recommendation of Proposal will be based on the following:
   a) The proposal meets the needs of the Town of Wolfville without question.
   b) The proposal meets or exceeds the "Specifications".
   c) The proposal is approved by the department concerned.
   d) All tender forms are complete in all respects.
7. The following items will not be accepted or considered:
   a) Tenders arriving after the closing date and time.
   b) Corrections or additions to any submitted proposal unless initialled by the bidder.
8. Proposals are to be submitted in a sealed envelope clearly identified "**WOL007-2025 Firefighting & Rescue Apparatus**" and are to be delivered no later than 3:00 pm, **Thursday, April 17th, 2025,** to:

   The Town of Wolfville
   359 Main Street
   Wolfville, NS B4P 1A1

   Attn: Todd Crowel
   Fire Chief

THE LOWEST OR ANY PROPOSAL NOT NECESSARILY ACCEPTED.
THE PROPOSAL MAY BE AWARDED IN WHOLE OR IN PART.

SPECIFICATIONS

Furnishing and delivery to the Wolfville Fire Department of a complete custom fire apparatus equipped as hereinafter specified.

It is the intent of the **Wolfville Fire Department** to acquire one (1) new 95-Platform Ladder Truck with a proven safety record. Apparatus with enhanced safety and performance characteristics and a proven history of safe operation will be given preference.

It is the intent of the **Wolfville Fire Department** to purchase apparatus with a proven record of safe and dependable performance.

With the view of obtaining the best results and the most acceptable apparatus for service in the fire department these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details to furnish equipment and appliances with which the successful bidder must conform. Minor details of construction and materials, where not otherwise specified, are left to the discretion of the contractor who shall be solely responsible for the design and construction of all features.

The NATIONAL FIRE PROTECTION ASSOCIATION pamphlet #1901 2016 edition for Motor Vehicle Apparatus, unless otherwise specified in these specifications shall prevail. In addition, the apparatus shall be tested and labeled to NFPA1900. The NFPA1900 test must be by NFPA1900and not a third party.

ONLY THE SPECIFIED FIREFIGHTING SUPPORT EQUIPMENT LISTED IN THESE SPECIFICATIONS SHALL BE PROVIDED.

The apparatus shall conform to all Federal and Provincial motor vehicle safety standards.

Bids will only be considered from companies that have an established reputation in the field of firefighting and rescue apparatus manufacturing. To be considered as established, companies providing proposals shall have been in business for at least twenty (25) years and shall have manufactured this design of custom fire apparatus for a minimum of twenty-five (25) years. If the proposal is presented by a dealer, the manufacturing company shall have been in business for at least twenty (25) years.

Each bid must be accompanied by a set of detailed manufacturer's specifications consisting of a detailed description of the apparatus and equipment proposed. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any bidder who fails to submit detailed construction specifications shall be considered non-responsive and shall render their proposal ineligible for award.

Each bidder shall furnish satisfactory evidence of the ability to construct the apparatus specified and

shall state the location of the factory where the chassis and apparatus will be built. They shall also show that they are able to render prompt service and to furnish replacement parts for the completed apparatus chassis, body and components.

Bidders shall have a dealer or manufacturer authorized service facility with company trained EVT's and full service capabilities **within 100 kilometers of Wolfville, Nova Scotia**. Each bidder's proposal shall include a full description of their main service facilities including the number of dealer employed (not sub-contracted) service technicians and other on-site service capabilities. Photographs of the bidder's service facilities shall be provided as part of the bid submission. The capabilities of the dealer to provide prompt service and parts replacement will be a critical factor in the selection of the successful bidder. The bidder shall also clearly indicate how they propose to deliver prompt on-site service for critical issues.

The manufacturer shall specify in his bid the number of working days and/or calendar days after acceptance of the formal contract by the manufacturer that the completed apparatus will be delivered by the purchaser.

The manufacturer will not be held liable for changes arising from its failure to make or delay in making deliveries because of fire, flood, riot, major component shortage, accidents, acts of God, or any circumstances beyond their control.

QUALITY AND WORKMANSHIP

The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points:

1. **Safety**. The apparatus must be designed with firefighter safety in mind. In particular, cab construction and crash test results will be an important factor in the selection of the successful bidder.
2. **Performance**. The apparatus must be designed, engineered and constructed with performance in mind. This shall include warranties and other provisions that will extend the longevity of the apparatus.
3. **Accessibility**. Ease for accessing various components which require periodic maintenance or monitoring.

Construction must be rugged, and design must be certified to carry the loads as specified and to meet the road and speed requirements as set forth under "PERFORMANCE TESTS AND REQUIREMENTS" of NFPA Pamphlet #1900 2016 edition.

Welding shall not be employed in the assembly of the apparatus in a manner that will prevent the removal of major components for service and/or repair.

SINGLE SOURCE MANUFACTURER

It is the intent of the fire department to purchase from a single source apparatus manufacturer. This is to ensure that there are no split-warranty issues and that the chassis and chassis systems have been designed and engineered to be totally integrated.

The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab weldment, cab, pump-house (including the sheet metal enclosure, valve controls, piping and operators panel) and body being designed, fabricated and assembled on the bidder's premises.

The bidder shall state the location of the factory where the apparatus is to be built.

ONLINE BUILD PROGRESS PROGRAM

Bids will only be accepted from manufacturers who provide an online build progress service. Digital images shall be provided through an online system that illustrates the build process through every stage.

PRE-BUILD MEETING AND FINAL INSPECTION TRIP

A pre-build meeting and a final inspection at the manufacturing facility for three (3) fire department members shall be provided.

The costs for the pre-build meeting shall be the responsibility of the bidder.

ISO CERTIFICATION

The manufacturer shall also be certified to operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International organization for Standardization (ISO) specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance shall be included with the bid.

DESIGN

The successful bidder shall be solely responsible for the design, construction and material used in the construction of the vehicle. The apparatus shall be of the latest design and type while using the most current industry construction techniques.

Each bidder shall supply with their bid a detailed drawing consisting of the driver side, passenger side and rear views of the apparatus. This drawing shall be representative of the apparatus being bid. The drawing must include but not be limited to all principle dimensions (height/width/length). Pictures or brochures are also encouraged that represent the quality of construction being proposed.

The apparatus, assemblies, component parts, etc., shall be designed and constructed with consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is to be subjected.

The apparatus shall be designed and constructed so component parts can be removed for service and repair with standard tools. Any special tools needed to service any component of the apparatus built or supplied by the component manufacturer shall be supplied with the apparatus. During the design and construction process the apparatus manufacturer shall take into consideration the ease of access to various areas requiring lubrication, inspection, service or adjustment.

The design, materials and materials must be of the highest quality in its respective field. Quality control inspections shall be performed at each step of the manufacturing process.

SPECIFICATIONS

The specifications contained within this document reflect the design, construction style and quality of ***existing fire apparatus operated by the fire department***. It is the intent of the fire department to match the design, quality and operational characteristics of existing department apparatus as closely as possible to facilitate common training, coordinated maintenance and parts replacement.

Similar to specifications that do not meet the intent of these fire department requirements will not be accepted.

EXCEPTIONS TO SPECIFICATIONS

Each bidder response shall include a returned copy of these specifications indicating compliance or non-compliance with **EACH** area of the specifications.

All exceptions, no matter how minor must be indicated.

Exceptions shall be listed on a separate sheet and shall refer to specification page number and paragraph. It will be mandatory for any perspective bidder that deviates from the proposed specifications, to give a full description of all deviations.

Items not addressed will be considered as being bid with no exception and will be included on the apparatus in the form presented in our specifications. Non-compliance will be grounds for rejection of the completed vehicle - **NO EXCEPTION.**

Bidders must follow this process.

Where bidder's specifications and/or construction differ in any way from the bid specification, a full and complete description in the specification will be required. Drawings will also be required to show alternative construction methods. Partial descriptions or general clarifications covering groups or sections of the specifications will be unacceptable.

CLARIFICATIONS TO SPECIFICATIONS

Clarifications shall refer to specification page number and heading. Any such clarification that appears vague or misleading shall be considered an exception. Complete clarifications are required describing the reason for the deviation. Apparatus will be inspected upon delivery for compliance with specifications. Deviations from what was bid and what is constructed may be cause for rejection of the apparatus.

CONTRACT AWARD

The purchaser reserves the right to reject any or all bid proposals and purchase the equipment it deems most suitable to its needs. Since all components and materials are commercially available these specifications shall in no way be considered proprietary.

The performance and construction requirements reflect a level of safety desired by the **Wolfville Fire Department.** These performance and construction requirements shall be considered as minimum. Failure to meet the chassis, body and pump minimum performance and design requirements may be cause for rejection of the proposal.

Payment will be upon delivery after acceptance by the fire department. Pricing shall not include any chassis pre-payments.

The intent of these specifications is to obtain the best value and design for the **Wolfville Fire Department.** Pricing is an important component; however, the lowest price may not necessarily be accepted.

All bid pricing shall remain valid for 30 days after opening.

PAYMENT TERMS

The Purchaser agrees to purchase and pay for the apparatus and miscellaneous equipment pursuant to the following terms and conditions:

1. All prices shall be less any taxes.
2. Payment of the apparatus will be upon delivery and acceptance by the fire department. Final inspection will be completed at the manufacturer's facility. Acceptance will be when the apparatus is delivered to the fire department. There will be no chassis prepayment.
3. The apparatus, without exception, will not be placed in service prior to full payment of apparatus

SUBMISSION OF BIDS

Bids shall be submitted in accordance with the following instructions:

- The bidder's proposed specifications shall be provided in full. Any deviations and clarifications shall be clearly marked.
- The bidder's proposed specifications detailing their construction methods shall be provided. This is necessary to evaluate each bidder's actual intent of building the equipment as specified herein.

The bidder's proposed format shall be the same as these specifications to allow the customer to easily compare the bids. NO EXCEPTIONS

- Bids shall be returned in a sealed envelope clearly marked "BID FOR FIRE APPARATUS".
- *The purchaser reserves the right to accept or reject any or all bids, to waive irregularities and to make the award in any manner deemed to be in their best interest.*

FIRE DEPARTMENT'S RIGHT TO NEGOTIATE FINAL DESIGN AND PRICING

In the event that final pricing exceeds the fire department's budget, the fire department reserves the right to negotiate with the selected supplier to achieve a design and final pricing that meets their budget requirements.

PRICING

PRICE FOR APPARATUS AS BID >	
NOVA SCOTIA HST @ 15%	
TOTAL PRICE INCLUDING TAXES >	

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SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Customer: WOLFVILLE FIRE DEPARTMENT # TESTING COMPLIANCE STANDARD ## Hose Bed Capacity Hose bed hose load allowance on the apparatus shall be 1000 lbs. ## Overall Height Restriction The apparatus shall have no overall height restrictions. ## Overall Length Restriction The unit has no overall length restrictions. ## English Tags The entire unit shall be provided with standard English OEM supplied tags. ## NFPA Compliance The OEM supplied components of the apparatus shall be compliant with NFPA 1900, 2024 edition. ## Equipment Capacity Equipment allowance on the apparatus shall be 2500 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable. # BUMPERS ## Front Bumper The vehicle shall be equipped with a one-piece 10” high bumper made from 10 gauge (0.135” nominal) polished stainless steel for corrosion resistance, strength, and long lasting appearance. It shall be mounted directly to		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
the front frame extensions for maximum strength. The bumper shall incorporate two (2) stiffening ribs. **Front Bumper Extension** The bumper shall be extended approximately 20” from the face of the cab as required. **Bumper Gravel Shield** The extended front bumper gravel shield shall be made of 3/16” (.375”) aluminum tread plate material. # BUMPER TRAYS **Bumper Tray - Center** A hose tray constructed of 1/8” aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 14" deep (13" to the top of the slats). One inch thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray. **Lid, Bumper Hose Tray** The center bumper tray shall have a diamond plate lid. The lid shall be hinged and includes a seal, shall be secured in the closed position by a Tri-Mark latch and held open with a pneumatic shock. # FRAME ASSEMBLY **Frame Rail Construction** The chassis frame shall utilize an integral torque box type design. The integral torque box shall combine the chassis frame and aerial torque box into a single structure. The integral torque box shall provide an optimized design that lowers vehicle center of gravity, eliminates the need to torque aerial frame attachment		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
bolts, and permits underslung outriggers to maximize body compartmentation. The 19” high x 34” wide torque box shall be fabricated of 50,000 psi minimum yield, high strength, low alloy steel. The frame and torque box shall be made of 42.7 lbs. per foot structural channel with .500” thick top and bottom plates and .500” integral bulkhead supports. Certified welders shall construct the torque box. The design shall utilize 100% welded joints for a totally sealed box. Skip welding shall not be acceptable. Complete Finite Element Analysis and strain gauge testing shall be employed to verify minimum safety factors for road traveling (5:1) and aerial operation (2.5:1). The completed torque box shall have the following attributes: Resistance to bending moment 14,350,000 in. lbs. Section modulus 287 cu. in. The frame section immediately forward of the torque box shall have the following attributes: Resistance to bending moment 4,907,000 in. lbs. Section modulus 98.14 cu. in. The torque box shall incorporate a stainless steel schedule 40 4” water pipe through the torque box for the aerial waterway discharge. In addition, the torque box shall have two (2) 3” conduits full length to encapsulate the hydraulic, air and electrical lines. The entire assembly shall be sand-blasted and painted black before chassis assembly. The custom chassis frame shall have a **WHEEL ALIGNMENT** in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer`s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
of alignment. The wheel alignment documentation shall be made available at delivery upon request. **Coated Fasteners** The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance. **Galvanized Frame Components** The front chassis frame extensions, crossmembers below cab and battery brackets shall be hot-dip galvanized for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard. **AXLE OPTIONS** **Front Axle** The vehicle shall utilize a Dana D-2200W drop beam front axle with a rated capacity of 22,800 lbs. It shall have 71” kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 42 degrees, plus two (+ 2) degrees to minus three (-3) degrees including front suction applications. The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life. The front springs shall be parabolic tapered, minimum 4” wide x 54” long (flat), minimum three (3) leaf, progressive rate. The springs shall have Berlin style eyes and rubber maintenance free bushings on each end with an additional standard wrap at the front eye. The capacity shall be 23,000 lbs. at the ground. Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The vehicle shall be equipped with a Sheppard integral model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 23,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail. **Shock Absorbers Front** Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three way adjustable. The shocks shall be covered by the manufacturer`s standard warranty. **Front Axle Sight Glass** The front axle shall have a Stemco sight glass on the hubs to check the lubricant level of the axle spindles. The inboard wheel seals shall be Chicago Rawhide brand (or equivalant). **Rear Axles** The vehicle shall utilize an Meritor RT-50-160, 54,000 lb. capacity rear tandem axle with single reduction hypoid gearing. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals. An Inter-Axle Differential (IAD) shall be provided for the rear axles. The IAD shall allow for speed differences between the forward and rear axles in a tandem while also providing equal pulling power from each axle of the tandem. The IAD shall be controlled by a switch accessible by the driver. **Driver Controlled Differential** A Rockwell driver controlled main differential lock shall be supplied. Operated from within the cab, it reduces wheel spin-outs by transferring power from the slipping		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
wheel to the wheel with traction. An indicator shall be provided visible to the driver to show when the lock is engaged. When used in a tandem axle application, the DCDL will be installed on the rear/rear axle only. # SUSPENSIONS ### Rear Suspension The vehicle shall be equipped with a Hendrickson FIREMAAX EX model FMX-542 air ride suspension for tandem drive axles. The suspension shall include dual height control valves that allow uneven, side heavy loads to be balanced, Quik-Align for easy axle alignment and four (4) hydraulic shock absorbers. The suspension shall be rated for the maximum axle capacity. # WHEEL OPTIONS ### Front Wheel Trim Package The front wheels shall have stainless steel lug nut covers (for use with aluminum wheels) or chrome plated plastic (for use with steel wheels). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless steel baby moons shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers. ### Rear Wheel Trim Package, Tandem Axle The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year rebuffing		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
policy. There shall be four (4) high hats and forty (40) lug nut covers. **Valve Stem Extensions** Each inside rear wheel on the rear axles shall have valve stem extensions. **Front Wheels** The vehicle shall have two (2) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires. The wheel shall have a load rating of up to 11,000 lbs. each (up to 11,400 lb rating available with speed limited to 60 MPH) **Rear Wheels** The vehicle shall have eight (8) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires. **TIRE OPTIONS** **Front Tires** The front tires shall be two (2) Michelin 425/65R 22.5 tubeless type 20 PR radial tires with XZY3 Wide Base aggressive tread. The tires with wheels shall have the following weight capacity and speed rating: Max front rating 22,800 @ 65 mph. Max front rating with Alco aluminum wheels - 24,400 @ 65 MPH (intermittent fire service rating if GAW is over 22,800)		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The wheels and tires shall conform to the Tire and Rim Association requirements. **Tire Pressure Indicators** The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service. Real Wheel Part number RWC1234 was superseded by RWC1235 as of June 2015 **Rear Tires** The rear tires shall be Michelin 12R 22.5 tubeless type radial tires with X MULTI GRIP D mud and snow tread. The tires with wheels shall have the following weight capacity: 54,000 lbs. (tandem duals) @ 68 MPH. The wheels and tires shall conform to the Tire and Rim Association requirements. **BRAKE SYSTEMS** **Front Brakes** The front axle shall be equipped with Dana / Bendix ADB22X 17 inch disc brakes. A 3 year/unlimited miles parts and 3 year labor brake warranty shall be provided as standard by Dana. The warranty shall include bushings and seals. **Rear Brakes**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS

The rear axles shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes with a maximum rated capacity of 54,000 lbs.

The brakes shall be covered by the manufacturer`s standard warranty which is two years, unlimited mileage and parts only.

Brake System

The vehicle shall be equipped with air operated brake system. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1900 Standard.

Each wheel shall have a separate integral brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1900 requirements. A 1/4” brass quick-release air inlet with male connection shall be located inside the driver door on the left side of the cab. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging into the wet tank.

A pressure protection valve shall be installed to prevent use of air horns or other air operated devices should the air system pressure drop below 80 psi.

One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

The following tank sizes shall be installed:

Tank Sizes in Cubic Inches

Suspension	Wet	Front	Rear	Rear Extension
34-54K	1738	1738	2988	0
58K	1738	1738	2988	1738

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
An automatic drain valve shall be installed on the wet tank. All other tanks shall be equipped with manual drain valves. A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally-sealed, water-, weather-, and vibration-resistant. The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual circuit design. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver`s instrument panel shall indicate malfunction to the operator. The system shall consist of a sensor clip, sensor, electronic control unit, and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate in milliseconds wheel slip. A deviation shall be corrected by cyclical brake application and release. If a malfunction occurs, the circuit shall signal the operator and the malfunctioning half of the system shall shut down. The system is installed in a diagonal pattern for side to side control. The system shall ensure that each wheel is braked in optimum efficiency up to five (5) times a second.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The system shall also interface with the application of the auxiliary engine, exhaust, or driveline brakes to prevent wheel lock. To improve service trouble-shooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started and a dash-mounted light shall go out once the vehicle is moving above 4 MPH. A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive. **Park Brake Release** One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver. **Electronic Stability Control** The apparatus shall be equipped with a G4 6S6M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing. RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded. Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer. To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip. 3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive. # AIR SYSTEM OPTIONS ## Air Dryer The chassis air system shall be equipped with a Bendix-Westinghouse AD-9 air dryer to remove moisture from the air in order to help prevent the air lines from freezing in cold weather and prolong the life of the braking system components. ## Air Tank Drain Pull Cords Manual drain valves with pull cords routed to side of cab/body shall be provided for all air brake system tanks. Labels shall be provided at the side of the cab/body that read "Air Tank Drain". ## Isolated Air Reservoir The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve. Specified options shall be plumbed to the isolated air tank.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Auxiliary Air Tank Plumbing The auxiliary air tank to be plumbed to the chassis air horns only. **Heated Moisture Ejectors** All air reservoirs shall be equipped with a Bendix DV-2 automatic reservoir drain valve which shall automatically eject moisture and contaminants from the reservoirs. The moisture ejectors shall be heated. **Air Lines** Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided. **Air Horns** Dual Hadley e-tone air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the air horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure. **Air Inlet** A 1/4” brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located outside driver's door next to handrail. **Stainless Steel Mounting Straps [Qty: 4]** Stainless steel mounting straps shall be provided for an air tank. **ENGINES & TRANSMISSIONS**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Transmission Selector A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a “Do Not Shift” light and a “Service” indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel. **Transmission Fluid** The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic. **Vehicle Speed** Electronic speed limiting set at 60 MPH as required by NFPA 1900. **Engine/Transmission Package** **Engine** A Cummins X15 Next Generation 6 cylinder diesel engine with 565 horsepower and 1850 foot-lbs of peak torque shall power the chassis. Emissions shall be compliant with EPA 2027 ultra-clean regulations using selective catalyst reductant and diesel particulate filter technology. The engine shall include Acumen telematics to improve diagnostic troubleshooting. The engine air filter intake shall be located above the radiator to minimize the risk of water ingestion during high water. The air filter shall use a replaceable dry type element designed to prevent dust and debris from being ingested into the engine.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A multilayered screen trap shall protect the air filter from embers and water. A restriction indicator light shall activate when the air cleaner element requires replacement. The engine exhaust piping shall be a minimum of 4” diameter welded stainless steel tubing. Note: Until the 2027 EPA engine integration is finalized, option availability and body design relative to engine and aftertreatment are subject to change. Additional costs associated with the 2027 EPA engine will be passed on to the end user. No exceptions. **Transmission** An Allison model EVS 4000P automatic transmission shall be provided. The transmission shall include electronic controls and be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing. A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission. **Automatic Shift to Neutral** The transmission shall be programmed to comply with NFPA 1900 and automatically shift to neutral upon application of the parking brake. ## Transmission Cooler The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. # SECONDARY BRAKING		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Jacobs Engine Brake One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1900 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver. When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power. When the on-off switch is in the “on” position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the “off” position, the engine brake shall immediately release and allow the engine to return to its normal function. The rear brake lights shall illuminate when the Jacobs engine brake is activated. **Transmission Programming** The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking. **EXHAUST OPTIONS** **Exhaust End Modification** The end of the exhaust tail pipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. The tail pipe will be at 90 degrees and straight		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
out below the side of body. A stop ring shall be provided on the tail pipe to properly position the Plymovent nozzle. The exhaust outlet shall be vented for use with 2013 and newer EPA engines. **Exhaust Blanket** The exhaust shall be covered with an insulation blanket specifically designed for high temperature usage. The blanket shall have a silicone impregnated fiberglass sewn outer cover with a stainless steel knitted wire mesh inner liner. The cover shall be retained with stainless steel capstan rivets and stainless steel lacing wire. The blanket shall be a 2-piece design installed from the engine turbo to the DPF and from the DPF to the SCR. **COOLING PACKAGE** **Engine Cooling Package** **Radiator** There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations in compliance with the engine and transmission OEMs and all EPA regulations. The complete cooling system shall be mounted to isolate it from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction caused by temperature variation. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to monitor the level of the coolant. All radiator tubes shall be formed from aluminized steel tubing. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
hoses and stainless steel “constant torque” style clamps. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance. The radiator and charge air cooler shall be removable through the bottom of the chassis. **Silicone Hoses** All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts. **Fan / Shroud** A 30 inch diameter fan shall be used to move cooling air through the radiator. It shall have eleven (11) blades to minimize noise while providing maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. A fan shroud and baffling shall be provided to direct air flow and minimize hot air recirculation during operation. The shroud shall be formed with curved surfaces to improve air flow and cooling. **Fan Clutch** The engine fan shall be mounted to the engine using a variable speed fan clutch. The clutch will vary the fan speed based on the need for engine and transmission cooling. If the fan clutch were to fail it shall fail in the ON condition to ensure continued cooling for the engine. # FUEL SYSTEMS ## Fuel Line All fuel lines shall be rubber.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Fuel Tanks Dual side-mounted fuel tanks shall be provided for a total usable capacity of 60 gallons. Each tank shall be of an all-welded aluminized steel construction with anti-surge baffles and shall conform to all applicable Federal Highway Administration (FHWA) 393.65 and 393.67 standards. The tanks shall be mounted behind the rear axle. Each tank shall be secured by a wrap-around T-bolt type stainless steel strap. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis. Each tank shall be equipped with a 2” filler neck, two (2) additional 80% draw pick-up/return connections, a vent with overturn leak protection, and a .50” NPT magnetic drain plug. The tanks shall be connected with a 1.0” crossover line for equalization allowing the full fuel capacity to be filled from either side of the vehicle. Fuel shall be drawn from one tank and returned to the other. A mechanical fuel pump sized to meet the engine requirements shall be provided. **Fuel Filter/Water Separator** The fuel system shall have a Fleetguard FS20121 (or equivalent) fuel filter / water separator as a primary filter. The fuel filter shall have a drain valve. A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator. **ALTERNATOR** **420 Amp Alternator** There shall be a 420 amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville brushless type with integral rectifier and		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
adjustable voltage regulator with an output of 369 amps per NFPA 1900 rating (420 amps per SAE J56). # BATTERIES ## Battery System The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification. Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas. One (1) positive and one (1) negative jumper stud shall be provided.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.		

CHASSIS OPTIONS

Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1810 series universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4” (0.75”) thick steel having 2.5” diameter holes shall be bolted directly to the rear of the frame to allow towing (not lifting) of the apparatus. The tow eyes shall be protruding into the rear compartment or out the rear of the body. The tow eyes shall be painted chassis black.

Front Tow Hooks

Two (2) heavy duty stainless steel front tow hooks shall be securely attached to the front chassis frame rails to allow towing (not lifting) of the apparatus without damage. They shall be mounted in the downward position. Tow hooks will be mounted inboard (horizontal) when used with a drop style frame extension.

Hot Shift PTO

Power take-off for the automatic transmission shall be a 6 bolt mounted hydraulic shift with a switch located in the cab. Hydraulic shift will allow the PTO to be shifted while the unit is in motion and without having to shut down the water pump.

On-Spot Tire Chains

The chassis shall be provided with On-Spot automatic tire chain system. The system shall include:

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• An air cylinder containing one diaphragm, one return spring, one pushrod and a collapsible dust boot held in place with an Oetiker® style retainer to prevent foreign material from entering the air cylinder. The cylinder will be assembled with a two-piece cylinder clamp. The air cylinder will be cast aluminum and the lid will be threaded to receive a 90-degree DOT approved air fitting. The cylinder and lid must be anodized for corrosion resistance. Each cylinder will have 6 strengthening ribs. The cylinder wall thickness will be a minimum of 6mm. • An extension rod and ball joint assembly that is fastened to the cylinder pushrod by means of a left hand thread. The ball joint must have a provision for greasings. • A swing arm that is connected to the ball joint assembly with a nylock lock nut on one side and is fastened to the cylinder bracket at the pivot point. The arm will be supported by 2 greaseable arm bushings. The arm will be one-piece hardened alloy material that is formed in such a fashion that it allows the chainwheel to contact the vehicle tire at 3-1/2 to 4 inches off the ground. • A chainwheel that is fastened to the arm with one 20mm bolt that is hardened to Metric Grade 8.8 along with a hardened lock nut. The bolt will also come with one chainwheel spacer for wheel height adjustment. The chainwheel will be 7-3/4 inches in diameter and will be constructed of a one-piece cast aluminum center hub that contains two maintenance-free sealed bearings. The circumference of the chainwheel will be rubber coated so that it may ride on the inside of the vehicle tire without causing any damage to the tire. There will be 6 lengths of chains approximately 13 inches long that will be welded to a single steel ring at 60-degree intervals. The steel ring will be bolted to the center hub with 6 Grade 8 cap screws and locknuts. Each length of chain will contain up to10 twisted links that are square-cut to provide for maximum traction in forward and reverse. Each chainwheel will be delivered with a		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
chainwheel helmet to protect the chainwheel bearing and casting. A switch shall be provided in the cab for activation of the tire chains. **Bottom Port Aerial Hydraulics** The aerial hydraulics shall be provided off of the bottom port of the Allison EVS4000/4500 transmission. **DEF Tank** A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided. The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater. A sender shall be provided in the DEF tank connected to a level gauge on the cab dash. The tank shall be located left side below rear of cab. **Power Steering Cooler** A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines. **CAB MODEL** The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety. The cab shall be constructed from 3/16” (0.188”) 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable. The inner structure shall be designed to create an interlocking internal ”roll-cage” effect by welding two (2) 3” x 3” x 0.188” wall-thickness 6063-T5 aluminum upright extrusions between the 3” x 3” x 0.375” wall-thickness 6061-T6 roof crossbeam and the 2.25” x 3” x 0.435” wall-thickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire. The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3” x 1.5” .375 thick C-channel extrusion across the front, with 3/4” x 2-3/4” (.75” x 2.75”) full-width crossmember tubes spaced at critical points between the front and rear of the cab. The cab floor shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate welded to the subframe structure to give the cab additional strength		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
and to help protect the occupants from penetration by road debris and under-ride collision impacts. The cab roof shall be constructed from 3/16” (0.188”) 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable. The cab roof perimeter shall be constructed from 4” x 6-5/8” (4” x 6.625”) 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure. The cab rear skin shall be constructed from 3/16” (0.188”) 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall. The left-hand and right-hand cab side skins shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement. The cab front skins shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9” outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact. **Cab Exterior**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The exterior of the cab shall be 94” wide x 130” long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101” above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 58”. Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of 3/16” (0.188”) composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris. A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab. The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4” (0.25”) thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,561-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver`s seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas. **Windshield Wipers** Two (2) opposed radial style windshield wipers with two (2) separate electric motors shall be provided for positive operation. The wipers shall be tested beyond the minimum SAE requirement to a total of 3.3 million cycles. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 20”, and the blade length approximately 21”. Each arm shall have a 90 degree sweep for full coverage of the windshield. The wipers shall be synchronized so as to wipe each windshield simultaneously. **Cab Mounts and Cab Tilt System**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side. An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation. Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position. The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set. The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab. In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A ”cab ajar” indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Cab Interior The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation. The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23” from the floor at each side and 27” in the center section. The engine cover shall not exceed 41” in width at its widest point. The engine cover insulation shall consist of 1/2” closed cell elastomeric compound foam with aluminum foil faced fiberglass fabric manufactured to specifically fit the engine cover. All edges and seams shall be sealed using aluminum foil faced fiberglass tape. The insulation shall meet or exceed DOT standard FMVSS 302-1 and V-0 (UI subject 94 Test). All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1900. The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance. A minimum of 57.25” of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25” floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36” of seated headroom at the "H" point shall be provided over each fenderwell.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door. The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25” front to rear for the driver and no less than 24" side to side by up to 27” front to rear for the officer to provide adequate legroom. Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab. All exposed interior metal surfaces shall be pretreated using a corrosion prevention system. The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1900. The insulation shall consist of 2 oz. wadding and 1/4” (0.25”) foam padding. The padding board shall be backed with 1/4” (0.25”) thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors. The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18” padded steering wheel with a center horn button shall be provided. The driver and officer seat risers shall be welded to the main cab floor structure. Depending on the make and model of the seats, a storage compartment with a hinged door shall be provided in the risers. The lower front cab steps shall be a minimum of 11.5” deep x 24” wide. The lower rear cab steps shall be a minimum 16” deep x 21” wide. The first step at the front and rear cab doors shall be no more than 24.0” above the ground with standard tires in the unloaded condition per NFPA 1900 standards. The front and rear steps shall incorporate full width intermediate steps for easy access to the cab interior. The intermediate step at the front doors shall be approximately 6" deep (minimum). The intermediate step at the rear doors shall be		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
approximately 10.75" deep (minimum). The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1900. A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right side windshield post for additional handholds. **Cab Doors** Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16” (0.188”) aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins. Front cab door openings shall be approximately 36” wide x 72.5” high, and the rear cab door openings shall be approximately 33.75” wide x 72.5” high. The front doors shall open approximately 85 degrees, and the rear doors shall open approximately 80 degrees. The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8” (0.375”) diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors. The front door windows shall provide a minimum viewing area of 518 sq. in. each. The rear door windows shall provide a minimum viewing area of 554 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free material and have a black		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
finish. Each exterior door handle shall have an integral keyed lock. Recessed paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1900. The rear cab door handles shall have a vertical orientation making them easily accessible from forward or rearward outboard seating positions. Each cab door shall have a manually operated door lock actuated from the interior of each respective door. **Cab Instruments and Controls** Cab controls shall be located on the cab instrument panel in the dashboard on the driver`s side where they are clearly visible and easily reachable. Chassis operation switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided: • Speedometer/Odometer • Tachometer • Engine hour meter • Engine oil pressure gauge with warning light and buzzer • Engine water temperature gauge with warning light and buzzer • Transmission oil temperature gauge • Two (2) air pressure gauges with a warning light and buzzer (front air and rear air) • Fuel gauge with low fuel indicator light • Voltmeter • Master battery/ignition switch (rocker with integral guard) • Engine start switch (rocker) • Heater and defroster controls with illumination • Marker light/headlight control switch (rocker) • Panel light dimmer switch (rocker) • Self-canceling turn signal control with indicators • Windshield wiper switch with variable speed and washer controls • Pump shift control with green ”pump in gear” and ”o.k. to pump” indicator lights • Parking brake controls with red indicator light on dash		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• Automatic transmission shift console • Electric horn button at center of steering wheel • Master warning light switch • Cab ajar warning indicator • Air filter restriction indicator Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls. **Electrical System** The cab and chassis system shall have designated electrical distribution areas. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An access cover shall be provided for maintenance access to the electrical distribution area. Circuit protection shall be provided by fuses, thermal reset breakers and / or solid state controls. A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference. All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3” on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion. **Daytime Running Lights** Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
switch shall automatically override the DRL for normal low beam/high beam operation. **Fast Idle System** A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output. **Cab Crashworthiness Requirement** The apparatus cab shall meet and/or exceed relevant NFPA 1900 load and impact tests required for compliance certification with the following: Side Impact Dynamic Pre-Load per SAE J2422 (Section 5). Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame. Cab testing shall be completed using 13,776 ft-lbs of force **exceeding** testing requirements. Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5. Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure. Cab testing shall be completed using 23,561 lbs of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed. Additional cab testing shall be conducted using 117,336 lbs of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
intrusion into the cab's occupant survival space and the doors shall remain closed. Frontal Impact per SAE J2420. Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame. Cab testing shall be completed using 34,844 ft-lbs of force **exceeding** testing requirements. Additional cab testing shall be conducted using 65,891 ft-lbs of force **exceeding** testing requirements by **over two (2) times**. The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS**. A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request. For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request. **Seat Mounting Strength** The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207. **Seat Belt Anchor Strength** The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210. **ISO Compliance** The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
within the pages of the manufacturer`s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements. # CAB ROOF TYPE ### Cab Roof Notch The cab roof shall be notched front to rear of the cab to minimize overall travel height of the vehicle. The cab roof notch shall not affect the interior cab ceiling or cab structure. # CAB BADGE PACKAGE ### Logo Package The apparatus shall have manufacturer logos provided on the cab and body as applicable. # CAB DOOR OPTIONS ### Rear Cab Door Position The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening. Rear door position to the 58” or (medium cab). ### Cab Door Locks The cab shall have 1250 keyed door locks provided on the exterior entry doors to secure the apparatus. ### Cab Door Panels		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall be split just below the handrail and incorporate an easily removable panel for access to the latching mechanism and window regulator for maintenance or service. **Cab Door Locks** Each cab door shall have a manually operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a keyed lock integrated with the cab door handle. **Cab Door Reflective Material** Reflexite V98 Red/Fluorescent Yellow Green striping shall be provided approximately 12" high on the lower cab door panels. The stripes shall run from the top outer corner to the bottom inside corner of the lower door area, forming a "A" shape when viewed from the rear. The reflective material shall meet NFPA 1900 requirements. **Cab Front Door Windows** Full roll-down windows shall be provided for the front cab doors with power operated heavy duty regulators. The regulators shall have worm gear drive cable operation for positive movement and long life. Scissors or gear-and-sector drives are not acceptable. Window switches shall be located at the center dash for access by the driver or officer. **Cab Rear Door Windows** Full roll-down windows shall be provided for the rear crew doors with power operated heavy duty regulators. The regulators shall have worm gear drive cable operation for positive movement and long life. Scissors or gear-and-sector drives are not acceptable. Window switches shall be located on each door with additional switches accessible by driver.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Cab Door Style The cab doors shall be barrier style with exposed lower steps. **Door Handles** The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free glass reinforced nylon material and have a black finish. The handles shall have clearance for a gloved hand. Each exterior door handle shall have an integral keyed lock. **Door Mounted Warning Lights** Four (4) Amdor model AY-LB-30CR05O-0 (ALS-W) red LED warning lights with clear lenses shall be provided. The lights shall be low profile approximately 4.72" long x 1.25" high x .5" deep and be IP67 rated. One (1) light shall be horizontally mounted on each interior door panel offset outboard. The lights shall feature internal flash patterns with each individual light activated by the corresponding cab door ajar circuit. **CAB STEP OPTIONS** **Cab Steps** The lower cab steps shall extend 3.5" past the side of the cab to provide increased surface area. **Lower Cab Step** The lower cab steps shall be four inches lower than standard. The lower cab sides and fender trim shall also be extended four inches for a clean integrated appearance. For clearance when tilting, the lower rear corners of the cab shall have a small bevel. **MIRRORS**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Mirror Extension There shall be a 2” extension provided for each Ramco mirror. **Mirrors, Heated** Driver and officer cab mirrors to be heated. Includes all surfaces (flat and convex, as applicable). **Cab Mirrors** Two (2) Ramco model 8001FFR remote controlled aluminum mirrors shall be installed. The mirrors shall incorporate a full face main section with a convex mirror with housing model CAS750, mounted to the top. The adjustment of main sections shall be through switches accessible by the driver. Location: mounted on front corners of cab. Note: Option was previously for a model 6001FFR. Ramco implemented a running change from 6000 series to 8000 series in 2023. **MISC EXTERIOR CAB OPTIONS** **Cab Windows Rear Wall** Fixed glass windows shall be supplied on either side of the cab, providing visibility at the rear. The windows shall be approximately 4” wide and approximately the same height as the door windows. **Cab Canopy Window** There shall be a fixed window provided between the front and rear doors on the driver`s side of the cab. Window dimensions shall be as follows: • 44" C/A cab (short cab): 16"W x 24.5"H • 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Cab Canopy Window There shall be a fixed window provided between the front and rear doors on the officer`s side of the cab. Window dimensions shall be as follows: • 44" C/A cab (short cab): 16"W x 24.5"H • 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H **Front Mud Flaps** Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly. **Handrails** Cab door assist handrails shall consist of two (2) 1.25” diameter x 18” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand. **Handrails** Cab door assist handrails shall consist of two (2) 1.25” diameter x 18” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear door openings each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand. **Rear Cab Wall Construction**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions. **Cab Wheel Well** The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets. **Receptacle Mounting Plate** A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator. **HVAC** **Heat, Supplemental** A single 40,000 BTU water heater shall be supplied in the front area of the cab. The unit shall heat the lower section of the driver`s and officer`s footwell. Dual 23,000 BTU water heaters shall be supplied in the rear of the cab to heat the rear cab lower section. The heaters shall have a fabricated aluminum cover (if applicable). The heater controls shall be on the dash accessible by the driver. On units with optional multiplex display climate control, the floor heaters shall be controlled through the HVAC screen in the display. **Air Conditioning** An overhead air-conditioner / heater system with a roof mounted condenser shall be supplied. The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
unit shall provide fourteen (14) comfort discharge louvers, eight (8) to the back area of the cab, six (6) to the front area of the cab including one (1) each side outboard in the forward overhead console. These louvers will be used for both AC and heated air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary. The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery. For improved corrosion resistance the evaporator shall have a hydrophilic blue fin coating. The air-distribution system shall use electric actuators and allow blended airflow to both the comfort air vents and defrost vents. The system shall allow for independently controlled air speed for the front and rear blowers. A separate switch shall be provided for the rear crew to control the rear fan speed. The condenser shall be roof mounted and have a minimum capacity of 65,000 BTUs and shall include a receiver drier. Performance Data: (Unit only, no ducting or louvers) • AC BTU: 55,000 • Heat BTU: 65,000 • CFM: 1300 @ 13.8V (All blowers) The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu. in. per revolution. The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less. # SEATS ## Cab Seats All cab seats shall be Bostrom brand.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Seat, Rear Facing One (1) Bostrom Tanker 450 ABTS seat with high back SCBA storage shall be provided in the rear facing position over the driver side wheel well. The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12″ of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel. Seat features shall include: • Removable ”Store-All” side cushions • Auto-pivot and return headrest to open for improved exit with SCBA • 12.5” wide SCBA cavity to store leading SCBA brands • Shoulder strap holder • Replaceable seat, side and headrest cushions **Seat, Rear Facing** One (1) Bostrom Tanker 450 ABTS seat with high back SCBA storage shall be provided in the rear facing position over the officer side wheel well. The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12″ of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel. Seat features shall include: • Removable ”Store-All” side cushions • Auto-pivot and return headrest to open for improved exit with SCBA • 12.5” wide SCBA cavity to store leading SCBA brands • Shoulder strap holder • Replaceable seat, side and headrest cushions **Seat, Officer**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
One (1) Bostrom Tanker 450 ABTS seat with high back SCBA storage shall be provided in the officer position. The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12″ of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel. Seat features shall include: • Removable “Store-All” side cushions • Auto-pivot and return headrest to open for improved exit with SCBA • 12.5” wide SCBA cavity to store leading SCBA brands • Shoulder strap holder • Replaceable seat, side and headrest cushions **Seat Fabric Color** All seats shall be black in color. **Seating Capacity Tag** A tag that is in view of the driver stating seating capacity of six (6) personnel shall be provided. **Cab Seat Embroidery [Qty: 6]** A custom embroidered logo shall be supplied on the back rest of each seat in the cab per the dealer/customer supplied artwork. **Cab Seat Embroidery Set-Up** A one time set-up fee shall be charged for transposing artwork into an embroidery template to be transferred onto the cab seats. The dealer/customer is required to supply artwork at the time of ordering apparatus. **Seat, Rear Wall**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
One (1) fold down seat with Bostrom Res-Q-Back seat back with SCBA storage. Location on the rear wall to be driver's side inboard, officer's side inboard. Features shall include: • Seat bottom constructed of high density foam with a heavy wear resistant covering • Automatically fold up when not in use to provide increased room in the rear of the cab. • Removable ”Store-All” side cushions. • Auto-pivot and return headrest to open for improved exit with SCBA. • 12.5” wide SCBA cavity to store leading SCBA Brands. • Built in lumbar support. • Replaceable seat, side and headrest cushions. All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position. **SCBA Bracket SmartDock** A IMMI SmartDock Gen2 SCBA storage bracket shall be provided. The SmartDock is a strap-free docking station that offers single-motion SCBA insertion and hands-free release when the firefighter stands up to exit the seat. SmartDock has undergone extensive testing to ensure that it meets or exceeds industry standards. When evaluated to the NFPA 1900 Standard for Automotive Fire Apparatus, SmartDock met requirements for retaining both the cylinder and the pack in dynamic testing. Location: officer's seat, rear facing driver's side, inboard driver's side rear wall, inboard officer's side rear wall, rear facing officer's side. **Seat, Driver**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
One (1) H. O. Bostrom 400 Series Sierra Air-30RX4 suspension seat with ABTS and high back styling shall be supplied for the driver position. The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12″ of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel. Features shall include: • Air-30 suspension assembly with weight, height and ride adjustment • Built in lumbar support. • 1.5” vertical suspension motion • 5” fore and aft adjustment **Seat Cover Material [Qty: 6]** Seat cover material Durawear Plus (EA). Low seam on bottom cushion only. **Seat Cover - Washable [Qty: 6]** The Bostrom seats shall have Zip Clean removable covers provided on the seat bottom and back cushions. The seats shall include two (2) sets of covers, one (1) installed and one (1) shipped loose. The covers shall be machine washable. The seats shall include Foam Block encapsulated seat foam that reduces absorption. **MISC INTERIOR CAB OPTIONS** **Cab Interior Padding Color** Cab interior padding to be gray color. Includes ceiling, side and rear walls as applicable. **Sun Visors** Lexan sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
flush mounted into the underside of the overhead console. **Mounting Plate on Engine Cover** An equipment mounting plate shall be provided between the driver and officer on the chassis engine cover. The plate shall be mounted to the engine access door (if equipped), or offset rear on forward engine cover, spaced approximately 1/2" up to provide clearance for equipment mounting hardware. The plate shall be constructed of 3/16" aluminum plate and have a swirl finish. **Engine Cover** The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer. The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance. **Cup Holders** Two (2) cup holders shall be provided on the cab engine cover. The cup holders shall be molded 18 lb/cu. ft. (+/- 0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99 and with a minimum skin thickness of 0.0625 inches. The outer surface of the cup holders shall be black with a pebble grain finish and shall include a removable plastic liner.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The cup holders shall be located Driver and officer side of engine cover slightly ahead of access door spaced approximately 20" apart (center to center). **Rear Facing Storage** Recessed storage areas shall be provided in the rear face of the cab wheel well risers. **Overhead Console** An overhead console shall be provided in the front of the cab for the driver and officer. The areas in front of the driver and officer shall be removable panels that can be used for switches and other electrical items. The entire overhead console shall be hinged for service access. The center of the overhead console shall have a lowered area for mounting of up to three (3) electrical components like siren heads, directional bar controllers, etc. The overhead console shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners. **Rear Engine Cover** The rear engine cover shall be provided with a stepped profile for use with rear engine cover options and/or mounting of equipment on the cover. **Cab Dash - Severe Duty** The driver side and center dash shall be constructed from cast aluminum for durability and long life. The driver side cast aluminum dash shall enclose the instrument cluster. The center dash area shall be designed to mount electrical components like siren heads, directional bar controllers, radios, etc. The driver and officer sides shall be angled for ergonomic access and designed for either a color display or switches. Access panels shall be		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
provided on the top, front and officer side for easy service access. The officer side dash shall be low profile and constructed from .125" smooth aluminum plate. A service access panel shall be provided in the top surface. The driver, center and officer side dash shall be painted to match the cab interior. The lower kick panels below the dash to be constructed from .125 aluminum plate painted to match the cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels. **Cab Insulation Package** The cab shall be insulated to mitigate noise and ensure maximum cooling/heating capacity. The insulation package shall include 1" Polyester foam with Mylar facing for the front wall, rear wall, side walls, and ceiling, Reflectex (or equal) inside each cab door and 1" closed cell foam insulation below the front and rear facing seat risers. **CAB ELECTRICAL OPTIONS** **Cab Dome Lights** Four (4) ceiling mounted dome light assemblies shall be provided. Each light shall consist of a three-position assembly mounted rocker switch, LED (light emitting diode) 4” grommet mount white dome light, LED (light emitting diode) 4” grommet mount red dome light, and a plastic housing. The white light activates with appropriate cab door and light assembly mounted rocker switch, the red light activates with assembly mounted rocker switch only.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Two (2) lights shall be located in both the front and rear of the cab. **Push-Button Switch** A heavy duty metal push-button switch shall be installed on the officer`s side switch panel to operate the Q2B siren.  **Push-Button Switch**  A heavy duty metal push-button switch shall be installed on the officer`s side switch panel to operate the Q2B siren brake. **Auto-Eject Inlet Receptacle** The inlet receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect. The receptacle shall be located outside driver's door next to handrail and the cover color shall be Red. **Horn Button Switch** A two (2) position rocker switch shall be installed in the cab accessible to driver and properly labeled to enable operator to activate the OEM traffic horn or electronic siren from the steering wheel horn button. **ATC Override** An Automatic Traction Control (ATC) override switch shall be provided. The switch shall be located within reach of the driver and allow for momentary disabling of the ATC system due to mud or snow conditions. **Push-Button Switch** A heavy duty metal push-button switch shall be installed on the officer`s side switch panel to operate the air horns.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Headlights The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position. **Pre-Wire** The chassis shall be pre-wired for installation of tire chains. A lock-out/safety rocker style switch shall be installed for activation. **Windshield Fans** Two (2) adjustable windshield defogger fans with individual switches shall be mounted in the cab as specified. The fans shall be 12 volt and shall each be rated at 250 cfm. Location: centered below overhead console. **Antenna Base** There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located driver side rearward with coaxial cable terminating at the center of the dash board, officer side rearward with coaxial cable terminating at the center of the dash board. **Battery Charger Location** The battery charger shall be located behind driver's seat. **Officer Speedometer** A speedometer shall be provided in the officer side multiplex display in the cab. **Push-Button Switch**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A heavy duty metal push-button switch shall be installed to operate the Federal Signal Rumbler or Whelen Howler. Location officer side switch panel. **Programming Instructions** Auxiliary switch 1 on the steering wheel switch pod shall be programmed to operate the 12v scene light on driver side of cab. **Programming Instructions** Auxiliary switch 2 on the steering wheel switch pod shall be programmed to operate the Front brow light(s). (Requires relay option if lights are not 12v). **Programming Instructions** Auxiliary switch 3 on the steering wheel switch pod shall be programmed to operate the 12v scene light on officer side of cab. **DPF Regeneration Override** A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver. **Steering Wheel Switches** The steering wheel shall be supplied with two (2) switch pods. Each switch pod shall include five (5) switches. The pods shall include switching for wipers, master warning, air horns and auxiliary engine brake (on/off). In addition there shall be three (3) auxiliary switches that can be programmed to meet department specified functions. The wiper switches shall include high / low speed, intermittent, wipe / wash and off. The wiper motors shall shall be synchronized so as to wipe each windshield simultaneously.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
LED Cab Headlights JW Speaker LED headlight model 8800 Evolution 2 heated headlights shall be provided. LED lights shall be provided in the low and high beam position of the head lamp assembly. When not equipped with separate daytime running lights, the low beam headlights shall activate with the release of the parking brake for additional vehicle conspicuity and safety. **Heating System:** The heated version of the Model 8800 Evolution 2 features a thermally conductive grid system that will de-ice the headlight lenses. The system reacts to temperature changes on a real-time basis with no action required by the driver. **Cab Door Step Area Lighting** There shall be eight (8) clear TecNiq model D07 LED lights provided to illuminate the cab step well areas. Two (2) lights shall be located at each door area, one (1) above each step. The lights shall have polished stainless steel housings. The lights shall be activated by the cab door ajar circuit. **Cab Turn Signals** A pair of TecNiq LED (Light Emitting Diode) turn signal lights with clear lens shall be installed on the front of the cab. The strip type lights shall be 1.25" high x 15" long and be mounted in a polished cast aluminum housing between the quad bezels. **Battery Charger** A Kussmaul Chief Series Charger, 40 AMP w/ remote and onboard displays shall be installed. A fully automatic charging system shall be installed on the apparatus. The system shall have a 120/240 volt, 50/60 hertz, 6/3 amp AC input with an output of 40 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
batteries remain fully charged while the vehicle is in the fire station or firehouse. The system shall include a remote and onboard charging status indicator panels. Each panel shall consist of an information screen to provide a visual signal of battery charging status. The microprocessor shall be continuously powered from the battery to provide the charge status. **Dual USB Charging Receptacle in Cab [Qty: 2]** A dual port USB charger receptacle shall be provided in the cab. Includes (1) USB-C and (1) USB-A socket for charging cell phones and other portable electronics. The receptacle shall be wired battery hot and located In cab driver side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush), officer side dash, driver side rear cab wall in or below seat support structure as space allows, officer side rear cab wall in or below seat support structure as space allows **Digital Dash** A digital LED cab dash display shall be provided for the driver. The display shall include gauges, telltales, warning messages and advanced diagnostic capabilities into a single 12.3 inch digital display. The display shall communicate to other chassis components via the vehicle J1939 databus and provide plain text messages for engine fault codes as required by the EPA for 2027. Gauges represented in the display shall include: • Speedometer with odometer • Tachometer • Engine water temperature gauge with warning light and buzzer • Engine oil pressure gauge with warning light and buzzer • Transmission oil temperature gauge • Air brake system pressure (front and rear) with low air alarm • Fuel level gauge with low fuel indicator light • DEF level gauge		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• Voltmeter • Engine hour meter Units of measure for the display shall be selectable between English and Metric. # AERIAL BODY ## Aerial Equipment Body **Performance** The aerial body shall be designed to permit the reloading of fire hose without raising the aerial from the stored position. This requirement is essential to the effective operation of the apparatus when pumper operations are required. **NO EXCEPTIONS**. The apparatus body shall be constructed entirely of aluminum extrusions with interlocking aluminum plates. An extruded modular aluminum body is required due to the high strength-to-weight ratio of aluminum, corrosion-resistant body structure, easy damage repair, and lighter overall body weight to allow for increased equipment carrying capacity. The apparatus shall incorporate a rescue style body design to maximize compartment space. The rescue style left and right side body shall combine upper and lower compartments to provide more efficient use of body storage capacity. The body design shall provide 181.6 cubic feet of storage, which exceeds the minimum NFPA 1900 Chapter 8.5 requirement of 40 cubic feet. The entire vehicle shall be constructed of aluminum extrusions. Body designs that incorporate steel sub-frames connected to aluminum compartments are not as corrosion-resistant and not acceptable. **Body Mainframe** The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
welded together using 5356 aluminum alloy welding wire. The mainframe shall incorporate a series of vertical frame components connected in series. Each vertical frame assembly shall be constructed with 3” x 3” extrusions welded together in a square frame configuration. The open center shall permit the installation of a tunnel for ground ladder storage. The mainframe shall be held together from front to rear by two (2) solid 1/2” x 3” aluminum braces on each side of the vertical frame components. The braces shall also serve as the connection point between the torque box and body frame. The body side compartments shall be connected and supported by the extruded aluminum mainframe assembly. **Body Side Assemblies** The left and right side body assemblies shall be framed with 6063T5 1 1/2” x 4” 3/16” wall extrusions. The left side body compartments shall be framed to make full height compartments ahead and behind the wheel well opening. The body side assemblies shall be designed so that the compartment walls are not required to support the body. The compartments shall be interlocked and welded to the side assembly extrusions. The top of the body side assemblies shall be supplied with embossed diamond plate covers with polished corners to minimize maintenance and provide service access to electrical components. **Stabilizer Openings** The body shall be designed to accommodate a four (4) stabilizer aerial system. One (1) opening shall be supplied behind the rear axle as close to the wheel well opening as possible to maximize rear angle of departure and to prevent the stabilizer pads from contacting the ground during driving. The second set shall be mounted just behind the pump compartment. The openings shall be framed in aluminum extrusions. A stabilizer cover shall be supplied on the extendable stabilizer. The cover shall provide a pleasing appearance and mounting		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
location for a red stabilizer warning light as outlined in NFPA 1900. The stabilizer openings shall be supplied with clear LED lights to illuminate the stabilizers and the ground surrounding the openings. The lights shall illuminate when any stabilizer is moved from the stored position. **Body Mounting System** The body shall attach to the integral torque box with grade 8 bolts connected through steel mounts welded on the side of the torque box. To isolate dissimilar metals a 1/4” fiber- reinforced rubber dielectric barrier between the aluminum body and steel torque box shall be supplied. Body designs that weld to the aerial torque box or chassis frame rails shall not be acceptable due to the stress imposed on the vehicle during road travel and aerial operations. **Rear Body Design** The rear body shall be designed to provide ground ladder storage, hose deployment, and service access to aerial components. The center rear of the body shall be open for ground ladder storage. The area below the ground ladder storage shall be for a waterway inlet (if applicable), the stabilizer control panel and have access doors to hydraulic components. The aerial master control panel that is located on the rear of the body shall consist of a master switch, interlock light, and indicators that illuminate when each stabilizer is deployed. The stabilizer controls shall be divided into two (2) boxes located one (1) each side on the rear body so the operator may observe the stabilizers being deployed on each side of the apparatus as outlined in NFPA 1900. **Side Aerial Access Staircase** A single access staircase shall be supplied on the driver`s side of the apparatus to the aerial turntable. The staircase shall incorporate a pocket-style drop-down step in the body rubrail to reduce ground to staircase step height when the unit is up on jacks. The angled		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
staircase shall be supplied with extruded aluminum handrails on both sides of the staircase frame. **Dual Fuel Fills** The apparatus shall be supplied with a fuel fill on each side of the body. The fuel fills shall have hinged doors attached with a 1/8” stainless steel hinge and a latch to keep the doors closed. **Water Tank Mounting System** The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3” x 3” frame assembly covered with rubber shock pads and corner braces formed from 3/16” angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity, the water tank bottom shall be mounted within 5” of the frame rail top. Designs that store ground ladders under the water tank and raise center of gravity shall not be acceptable. **Upper Body** The upper forward area of the body shall have embossed diamond plate covering the water tank. To the rear of the water tank shall be an open storage area with embossed diamond plate flooring. **Fire Hose Storage** The hosebed shall contain 50 cubic feet. The hosebed shall measure 23” deep by 18” wide and 210” long. The hosebed compartment deck shall be constructed entirely from maintenance-free extruded aluminum. Extrusions shall have an anodized ribbed top surface for maintenance-free service life. Extruded aluminum slats shall be 3/4” x 2 3/4” and shall be riveted into a one-piece grid system to prevent the accumulation of water and allow ventilation to assist in drying hose. The hosebed compartment shall be free of sharp edges and		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
projections to prevent hose damage. The compartment deck design shall incorporate a track for the installation of adjustable hosebed dividers. The track shall hold the nut straight so only a Torx head driver is required to adjust the divider from side to side. **Compartments** All body compartment walls and ceilings shall be constructed from 1/8” formed aluminum 3003 H14 alloy plate. Each compartment shall be modular in design and shall not be part of the body support structure. Compartment floors shall be constructed of 1/8” aluminum diamond plate welded in place. Compartment floors that are over 15” deep shall be supported by a minimum 1.5” x 3” x 1/8” walled aluminum extrusions. The compartment seams shall be sealed using a permanent pliable silicone caulk. A series of louvers shall be supplied to facilitate ventilation of each compartment. Each louver shall be 3” wide by 3/4” tall and 1/2” deep. **Compartment Sizes** The approximate compartment sizes and locations shall be as follows: **Left Side**: There shall be one (1) compartment (L1) over the forward stabilizer. The compartment shall be approximately 31” wide x 26.5” high x 17” deep (upper) and 31” wide x 28.5” high x 14” deep (lower) and contain approximately 15.24 cubic feet of storage space. The door opening shall be approximately 31” wide x 55” high. There shall be one (1) compartment (L2) behind the forward stabilizer. The compartment shall be approximately 38” wide x 26.5” high x 17” deep (upper) and 38” wide x 39” high x 26” deep (lower) and contain approximately 32.21 cubic feet of storage space. The door opening shall be approximately 38” wide x 65” high.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
There shall be one (1) compartment (L3) over rear wheels. The compartment shall be approximately 50.5” wide x 12.5” high x 17” deep (upper) and 50.5” wide x 19” high x 25” deep (lower) and contain approximately 20.09 cubic feet of storage space. The door opening shall be approximately 50.5” wide X 31.5” high. There shall be one (1) compartment (L4) over rear wheels. The compartment shall be approximately 52” wide x 19” high x 20” deep (forward) and 11.5” wide x 19” high x 18” deep (rearward) and contain approximately 13.72 cubic feet of storage space. The door opening shall be approximately 63.5” wide x 19” high. There shall be one (1) compartment (L5) over the rear stabilizer. The compartment shall be approximately 31” wide x 14.5” high x 18” deep (upper) and 30” wide x 28” high x 14” deep (lower) and contain approximately 11.49 cubic feet of storage space. The door opening shall be approximately 31” wide x 42.5” high. There shall be one (1) compartment (L6) behind the rear stabilizer. The compartment shall be approximately 25.5” wide x 14.5” high x 18” deep (upper) and 25.5” wide x 38.5” high x 23” deep (lower) and contain approximately 16.72 cubic feet of storage space. The door opening shall be approximately 25.5” wide x 53” high. **Right Side:** There shall be one (1) compartment (R1) over the forward stabilizer. The compartment shall be approximately 31” wide x 26.5” high x 17” deep (upper) and 31” wide x 28.5” high x 14” deep (lower) and contain approximately 15.24 cubic feet of storage space. The door opening shall be approximately 31” wide x 55” high. There shall be one (1) compartment (R2) behind the forward stabilizer. The compartment shall be approximately 38” wide x 26.5” high x 17” deep (upper) and 38” wide x 39” high x 26” deep (lower) and contain approximately 32.21 cubic feet of storage space. The		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
door opening shall be approximately 38” wide x 65” high. There shall be one (1) compartment (R3) over the rear stabilizer. The compartment shall be approximately 30” wide x 19.5” high x 14” deep and contain approximately 4.74 Cubic feet of storage space. The door opening shall be approximately 31” wide x 19.5” high. There shall be one (1) compartment (R4) behind the rear stabilizer. The compartment shall be approximately 49.5” wide x 30” high x 23” deep and contain approximately 19.77 Cubic feet of storage space. The door opening shall be approximately 49.5” wide x 30” high. **Handrails** Access handrails shall be provided at all step positions, including, but not limited to, the rear turntable access steps and installed to NFPA 1900 15.8. All body handrails shall be constructed of maintenance-free, corrosion-resistant, extruded aluminum. Handrails shall be a minimum of 1.25” OD and shall be installed between chrome end stanchions at least 2” from the mounting surface to allow for access with a gloved hand. The extruded aluminum shall be ribbed to assure a good grip for personnel safety. **Steps, Standing, and Walking Surfaces** The maximum stepping distance shall not exceed 18”, with the exception of the ground to first step. The ground to first step shall not exceed 24”. The ground to first step shall be maintained when the stabilizers are deployed by an auxiliary set of steps installed at the aerial access staircase. All steps or ladders shall sustain a minimum static load of 500 lbs. without deformation as outlined in NFPA 15.7.2. All exterior steps shall be designed with a minimum slip resistance of 0.52 when tested wet using the Brungraber Mark II tester in accordance with the manufacturer's instructions.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Apparatus Warning Labels A label shall be supplied on the rear body to warn personnel that riding in or on the rear step is prohibited as outlined in NFPA 1900 15.7.5. A label shall be applied to both sides of the apparatus and the rear to warn operators that the aerial is not insulated. **Rubrail** The body shall have a rubrail along the length of the body on each side and at the rear. The rubrail shall be constructed of minimum 3/16” thick anodized aluminum 6463T6 extrusion. The rubrail shall be a minimum of 2.75” high x 1.25” deep and shall extend beyond the body width to protect compartment doors and the body side. The rubrail shall be of a C-channel design to allow marker and warning lights to be recessed inside for protection. The top surface of the rubrail shall have a minimum of five (5) serrations raised .1” high with cross grooves to provide a slip-resistant edge for the rear step and running boards. The rubrail shall be spaced away from the body using 3/16” nylon spacers. The ends of each section shall be provided with a rounded corner piece. The area inside the rubrail C-channel shall be inset with a reflective material for increased side and rear visibility. **ISO Compliance** The manufacturer shall ensure that the construction of the apparatus aerial body shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer`s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus aerial device that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
AERIAL BODY MODIFIERS **Combined Compartments** The left rear side body compartments shall be combined into one large compartment. A small compartment shall be provided below the combined compartment to the rear of the stabilizer (space permitting). The compartment shall have a horizontally hinged single pan door constructed of the same material / finish as the body wheelwells. Note: This option alters the compartmentation dimensions in this specification. See reference drawing for new dimensions. **Additional Compartment** An additional upper compartment shall be provided over the right forward tandem axle wheelwell for additional enclosed storage space. The compartment shall be extended in height up to the top of the body. The compartment dimensions shall be provided on the reference drawing. **Raise Rear Perimeter** The rear of the body aft of the rear outriggers shall be raised 4" to provide an improved angle of departure. This option will alter compartment sizes (see reference drawing for dimensions). **BODY COMPT REAR** **Rear Body Panels** The rear body panels shall be smooth 1/8” un-painted aluminum plate to facilitate rear body striping. The panels shall be bolt-on for a clean appearance and easier repair in the event of damage. **AERIAL BODY OPTIONS**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Auxiliary Ground Pads Four (4) auxiliary ground pads shall be provided. The pads shall be 24” x 24” x 1/2” thick aluminum plate with a 20 degree formed handle with cutout for hand hold. The pads shall be stored in brackets that are welded below the body. **Rear Pike Pole Storage** Pike poles storage shall be provided at the rear of the body for six (6) pike poles. The storage area shall be labeled for two (2) 6` poles, two (2) 8` poles, and two (2) 12` poles. The pike poles shall be secured by either ”J” slotted locking tubes and/or hinged door(s) that matches the rear body finish. **Ladder Tunnel Door** A 3/16” (.188) lift-up door with 1/4-turn D-ring style handle shall be installed for access to the rear ladder tunnel. The door shall be constructed using a box pan configuration. The outer door pan shall match the rear body finish. The inner door pan shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have threaded inserts to attach door hold-open hardware. The inner pan shall have a 95 degree bend to form an internal drip rail. A drain hole shall be installed in the lower corner of all inside door pans to assist with drainage. The door shall open 20 degrees past horizontal to allow easy removal of ground ladders. **Rear Control Doors** The driver/officer jack and master control switch panels at the rear of the body shall be provided with access doors. The doors shall have the same finish as the rear of the body. **Triple Crosslay Hosebed**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Three (3) crosslay hosebeds shall be provided at the front area of the body. Each of the two (2) forward crosslay sections shall have a capacity for up to 200` of 2.0`` double-jacket fire hose double stacked and preconnected to the pump discharge. The third rearward crosslay section shall have a capacity for up to 200` of 2.5`` double-jacket fire hose double stacked and preconnected to the pump discharge. The crosslay decking shall be constructed entirely of maintenance-free 3/4`` x 2-3/4`` hollow aluminum extrusions. Stainless steel rollers with nylon guides set in aluminum extrusions shall be installed horizontally and vertically on each end of the crosslay to allow easy deployment of the hose and help protect the body paint. **Dunnage Pan** A dunnage pan constructed of 3/16`` (.188``) aluminum treadplate shall be located rearward of the crosslays. The dunnage pan shall be sized to maximize available storage space. **Outrigger Covers** Two (2) piece outrigger covers constructed of 14 gauge brushed finish stainless steel plate shall be provided for the jack leg openings. One piece of the cover shall be sized to cover just the extending outrigger in order to require a minimal amount of set-up space. The second piece of the cover shall be fixed and mounted to the body to cover the remaining outrigger opening. **Fuel Fill Door** The hinged fuel fill door and fixed panel below door each side to rear of rear axle shall be 14 ga brushed S/S. **DOORS** **Single Compartment Door** A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
and shall be constructed from 3/16” (0.188”) aluminum plate. The inner door pan shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail. The compartment door shall have a 1” x 9/16” (1” x 0.43”) closed-cell ”P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone. A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage. A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2” (4.5”) D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance. The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device. An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment. The door(s) shall be installed in the following location(s): R4 **Single Compartment Door** A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16” (0.188”) aluminum plate. The inner door pan shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
pan shall have a 95-degree bend to form an integral drip rail. The compartment door shall have a 1” x 9/16” (1” x 0.43”) closed-cell ”P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone. A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage. A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2” (4.5”) D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance. The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices. An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment. The door(s) shall be installed in the following location(s): L4 **Roll Up Compartment Door** A ROM brand roll up door with satin finish shall be provided on a compartment up to 45” tall. The door(s) shall be installed in the following location(s): L3, L5, R3. The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
to prevent any metal to metal contact and inhibit moisture and dust penetration. The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment. The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device. A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation. The door opening shall be reduced by 2” in width and approximately 8-9” in height depending on door height. **Roll Up Compartment Door** A ROM brand roll up door with satin finish shall be provided on a compartment greater than 45” tall. The door(s) shall be installed in the following location(s): L1, L2, R1, R2. The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration. The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment. The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation. The door opening shall be reduced by 2” in width and approximately 8-9” in height depending on door height. **Latch** A Tri-Mark door latch shall be installed on a box pan compartment door. A Tri-Mark door latch shall be located on the following door(s): L4, R4, R5, ladder tunnel **Drip Pan** Drip pan (OEM style) for a roll-up door (EA). Location(s): L1, L2, L3, L5, R1, R2, R3. **Double Compartment Door** Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16” (0.188”) aluminum plate. The inner door pans shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 90-degree bend to form an integral drip rail. The compartment doors shall have a 1” x 9/16” (1” x 0.43”) closed-cell ”P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone. A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage. A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the primary door. The 4-1/2” (4.5”) D-ring handle shall be mounted directly to the door latching mechanism with		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
screws that do not penetrate the door material for improved corrosion resistance. The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment. Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side. The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe. The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible). An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment. The door(s) shall be installed in the following location(s): R5 **Strap for Roll-Up Door** A bungee type strap shall be provided on the roll-up doors to assist in closing the door. The strap shall be affixed to both the door and the interior so the strap stays inside the compartment when lowering. The strap shall be provided on full height and high side (upper) compartments.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
SHELVES **Permanent Shelf** There shall be a permanent mounted shelf provided for a compartment as specified. The shelf shall be at the offset (unless otherwise specified) within the compartment. The shelf shall have a minimum 2” front lip for added strength and reinforcement and to accommodate optional plastic interlocking compartment tile systems. The shelf shall be capable of holding 100 lbs. Aluminum bodies: Material to be 3/16" (.188") thick aluminum smooth plate. Stainless steel bodies: 12 ga smooth plate 304L stainless steel. **Adjustable Shelf [Qty: 8]** There shall be an aluminum adjustable shelf provided for a compartment as specified. The shelf shall be constructed of 3/16” (.187”) smooth aluminum plate. The shelf shall have a minimum 2” front and rear lips to accommodate optional plastic interlocking compartment tile systems. For additional strength and reinforcement of the shelf a return break shall be provided on the outward lip. The shelf shall be capable of holding 100 lbs on compartments with tracks mounted on back wall (compartments up to appoximately 12" deep) or shall be capable of holding 250 lbs with tracks mounted on forward and rearward walls. The shelf shall be sized, width and depth, to match the size and location in the compartment. **Adjustable Tracks [Qty: 8]** Tracks shall be provided in the compartment as specified for use with adjustable shelves and/or trays in		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
non-transverse compartments. The tracks shall be vertical mounted and attached to the side and/or rear walls of the compartments. # COMPARTMENT DIVIDERS ### Partition Vertical Bolt-In [Qty: 2] Partition, bolt-in vertical partition wall. Locate in a compartment as specified. Partition constructed out of 3/16" 3003 smooth plate. # TRAYS / TOOLBOARDS ### Roll-Out Tilt Down Tray [Qty: 2] A roll-out/tilt-down tray(s) shall be floor mounted in compartment(s) as specified. The tray(s) shall be constructed of 3/16” (.187”) smooth aluminum plate with welded corners for increased strength and rigidity. The tray shall be sized in width and depth as applicable. An Innovative Industries SlideMaster (model MT) aluminum tip down frame and channel assembly shall be provided for the tray(s) for the ease of operation and long service life. A positive twist lock shall be provided to secure the tray(s) in the stored position. The tray(s) shall roll-out approximately 90% from the stored position and shall tip 30 degrees downward from horizontal. The capacity rating of the tray, in the extended position, shall be 200 lb. uniformly distributed load. ### Roll-Out/Tilt-Down Tray [Qty: 3] A roll-out/tilt-down tray shall be adjustable mounted in a compartment as specified. The tray shall be constructed of 3/16” (.187) aluminum with welded corners for strength and rigidity. The tray shall be sized in width and depth as applicable.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
An Innovative Industries SlideMaster (model MT) aluminum tip down frame and channel assembly up to sixty (60") wide shall be provided for the tray for the ease of operation and long service life. A positive twist lock shall be provided to lock the tray in the stored position. The tray shall roll out approximately 90% from its stored position and shall tip 30 degrees from horizontal. The capacity rating of the tray, in the extended position, shall be 200 lbs. uniformly distributed load. **Roll-Out Tray [Qty: 3]** There shall be a floor mounted SlideMaster with roll-out tray provided in a compartment as specified. The roll-out tray shall be constructed of 3/16” (.187) smooth aluminum with welded corners for strength and rigidity. The tray shall be sized in width and depth as applicable. An Innovative Industries SlideMaster (model AM3) aluminum frame and channel assembly shall be provided for the tray for the ease of operation and long service life. A positive twist lock shall be provided to lock the tray in the stored position. The tray shall roll out approximately 100% from the stored position. The capacity rating shall be 600 pounds uniformly distributed load. **Tool Board PAC TRAC [Qty: 4]** Tool Board, Pac TRAC brand double sided adjustable slide out tool board on slide model VSOHD-24 shall be provided in a compartment as specified. • The Vertical Slide Out P/N VSOHD-24 is a double sided full extension slide out mounting product. 24 inches of travel. • Equipment mounting on both sides of panel. • Compatible with all PAC tool brackets. • 250lb capacity. • Locks in closed and open positions for stability.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The tool board shall be mounted at top and bottom on adjustable tracking for ease of placement. The capacity rating shall be 250 lbs. maximum at full extension. **COVERS** **Aluminum Cover Hose Bed** An aluminum cover shall be provided to protect fire hose stored in the hose bed. The hose bed cover shall be constructed of 1/8" aluminum tread brite and shall be two piece in design. Cover shall be hinged with full-length stainless steel knuckle hinges. For ease of use a pneumatic cylinder (gas shock) shall be used on each cover. Each cover shall also have a recessed handle. Each cover shall have a single water and corrosion resistant switch that will activate the 2" red flashing door ajar light in the cab to alert the driver that a cover is open. **Rear Hose Bed Cover** A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed at the rear apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch. The top of the cover shall be mechanically attached to the rear hose bed cover extrusion. The lower portion of the cover shall be secured in place with heavy duty nylon straps to comply with the latest edition of NFPA 1900. **Crosslay Cover** A crosslay cover shall be provided for the crosslay storage area of the pump module. The crosslay cover shall be provided in compliance with NFPA 1900.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The crosslay cover shall be constructed from 3/16” (.187”) aluminum treadplate. The cover shall include a full-length stainless steel 1/4” (0.25”) rod piano-type hinge. The cover shall be hinged to open and not interfere with applicable plumbing components on the apparatus. The crosslay cover shall include applicable grab handle(s) and two (2) butterfly style latches to secure the cover in the closed position. **Crosslay Cover Hinge** The crosslay cover shall be hinged along the forward edge of the crosslay area. **Crosslay Cover - Sides** A pair of covers constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the side openings of the apparatus crosslay.The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch. The side flaps shall be secured in place to comply with the latest edition of NFPA 1900 **Headboard Cover** A cover constructed of black 18 oz. PVC vinyl coated polyester shall be installed on the service access opening at the front of the pump compartment. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch. The cover shall be held in place by twist-Lock fasteners in the corners and snaps on the sides. **Hold Open** Hold open device(s) shall be provided for aluminum crosslay (single or bi-fold) cover. **PUMP MODULE**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Pump Panel Opening Pump panel opening is 46" wide. **Pump Module Assembly** **Pump Module** The front of the apparatus body shall have an integral compartment extension with upper and lower storage areas. The extension shall have had FEA analysis completed to ensure a robust design. The extension shall be constructed from 1.5" x 3" x 3/16" wall and 1.5" x 3" x 3/8" wall webbed aluminum extrusions. The extension shall consist of upper and lower areas. The lower area floor shall be constructed from 1/8" smooth aluminum plate and be bolted in to facilite pump system servicing. The outboard floors of the upper area shall be constructed from 1/8" smooth aluminum plate. The center upper floor shall be 1/8" smooth aluminum plate and removable to provide easy access to the pump manifold and valves. The pump module shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. The pump module design and mounting shall be separate from the body to allow each to move independently of each other in order to reduce stress from frame twisting and vibration. **Pump Module Compartments** The pump module design shall also include a rescue-style configuration to the rear section of the module. Driver side compartment shall be for pump panel controls. Officer side rescue-style compartment located opposite driver side pump panel controls. The compartment shall be approximately 26” wide x 15” high x 12” deep (upper) and 26” wide x 31” high x 24” deep (middle) and 26” wide x 25” high x 20” deep (lower) contain approximately 21.42 cubic feet of storage space. The		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
door opening shall be approximately 26” wide x 72” high. **Pump Access** Pump service access doors shall be provided at the front of the extension and in the upper back wall of the right side compartment opposite the pump panel. The doors shall be secured with tool-free hardware. **Pre-connect Plumbing (if applicable)** When the transverse storage area are specified to preconnected handlines the plumbing for the handlines shall be from the ceiling of the storage area to facilitate use of optional removable trays. **Dunnage Pan** A dunnage area shall be located just to rear of upper transverse compartment. The dunnage pan shall be sized to maximize available storage space. # PUMP PANELS ## Side Mount Pump Panels The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area. ## Hinged Gauge Panel The driver side stainless steel single gauge panel shall be positioned where it can be opened downward for access to gauges and other interior pump module mounted items. The gauge panel shall include latches to secure the panel in the closed position. Two (2) cable tethers shall be provided to hold the panel in the open position. ## Pump Access Door		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves. The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4” pins along the forward edge of the pump module. The hinges shall be ”staked” on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position. # MISC PUMP PANEL OPTIONS ## Pump Panel Tags Color coded pump panel labels shall be supplied to be in accordance with NFPA 1900 compliance. ## Special Color Pump Panel Tags. The pump panel tags shall be color coded per customer specifications. ## Special Label Pump Panel Tags The pump panel tags shall be provided with special labeling as per customers specifications. # PUMP MODULE OPTIONS ## Pump Compartment Heaters Two (2) 24,000 BTU heaters shall be installed in the lower pump compartment area. The heaters shall be connected to the chassis engine coolant system. The heaters shall include manual shut-off valve, electric shut-off valves, 12 volt blowers and controls at the pump operator`s panel. ## Extreme Weather Heat Pan Extension Plates		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The bottom heat pan shall have additional plates mounted inside the front and rear of lower pump module area. These plates shall increase the heat retention in the lower pump module area during extreme weather conditions. The pump compartment heat pan shall have vertical extensions added to the front and rear to further aid in the retention of heat for extreme cold climates. The extensions shall be bolted on and extend up to approximately the bottom of the chassis frame rails. **Heat Pan** The pump compartment shall have a heat pan installed under the pump area. The heat pan shall be constructed of 1/8” (.125”) smooth aluminum plate and shall be easily removable for fair weather operations. The heat pan shall be four (4) sided with two (2) removable bottoms. The bottoms shall provide access to the lower area of the pump/pump compartment. The bottoms shall include butterfly latches to secure them in the closed position. **Flex Joint** The area between the pump modules and body shall include a rubber flex joint. **WATER TANK** **Booster Tank** The booster tank shall be T-shaped in configuration and shall have a useable capacity of 500 gallons (U.S.). The tank sides, top, and bottom shall be constructed of 1/2” (0.50”) black UV-stabilized copolymer polypropylene for high strength, corrosion resistance, and long life. The tank shall be constructed utilizing latest thermoplastic welding technology. A clean, hot air controlled temperature process shall ensure that the		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
weld reaches its plasticized state without cold or hot spots. The tank shall undergo extensive testing prior to installation in the truck. The process shall include an electronic spark and waterfill test after both the internal and external tank shell welds are completed. The tank shall have a combination vent and manual fill tower. The tower shall be located in the left front corner of the tank. The tank overflow shall be 4” diameter (3" may be provided on aerial applications with up to 1.5" tank fill only) and shall dump behind the rear wheels to permit maximum traction. The tower shall have a hinged cover and a 1/4” (0.25”) thick polypropylene screen. There shall be two (2) standard tank openings; one (1) for the tank-to-pump suction line with an anti-swirl plate, and one (1) for the tank fill line. Baffles, both longitudinal and latitudinal, shall be interlocking and thermo welded to minimize water surge during travel, enhancing road handling stability. Openings in the baffles shall be positioned to allow waterflow to NFPA standards during filling or pumping operations. The tank shall be supported in an aluminum cradle resting on the frame on fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when two dissimilar metals come it contact. The tank shall be completely removable without disturbing or dismounting the apparatus body structure. A lifetime manufacturer`s limited warranty shall be included. **Tank Brand** The water tank and foam tank (if applicable) shall be UPF brand. **TANK PLUMBING**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Tank Fill 2 Akron Valve One (1) 2” pump-to-tank fill line having a 2” manually operated full flow valve. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it. The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. **Tank Drain 1.5 in with pull cable.** One (1) 1-1/2`` gated tank drain shall be installed. It shall be controlled by a manually operated Akron 1-1/2`` valve at the left side pump operator panel area. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. The valve shall be an Akron 8800HD series with a chrome-plated brass ball for ease of operation and increased abrasion resistance. The valve shall have a self locking ball feature using an automatic friction lock design to balance the brass ball when in a throttle position and water is flowing through it. The valve shall be of the unique Akron Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss. **Tank to Pump, 3" Akron Valve** One (1) manually operated 3” Akron valve shall be installed between the pump suction and the booster tank in order to pump water from the tank. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. **FOAM TANK** **20 Gallon Foam Tank** A 20 gallon (U.S.) foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank. The integral tank top, sides, and bottom shall be constructed of black UV-stabilized copolymer polypropylene. The copolymer polypropylene tank material shall be welded together utilizing thermoplastic welding technology. A clean hot air temperature controlled process shall ensure that each weld reaches its plasticized state without cold or hot spots. The copolymer polypropylene material shall be used for its		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
high strength and corrosion resistance for a prolonged tank life. The foam tank shall have one (1) fill tower with a hinged lid. The foam fill tower shall include a stainless steel butterfly latch to secure the lid in the closed position and a pressure/vacuum vent mounted in the lid. The fill tower shall be located in the forward area of the tank. The fill tower shall include a removable 1/4” (0.25”) thick polypropylene screen. The foam tank shall undergo extensive testing prior to installation in the truck. The testing shall include an electronic spark and tank fill test after both the internal and external tank shell welds are completed. A lifetime manufacture`s limited warranty shall be included. As this vehicle is intended to perform the function of a pumper with foam capability, foam tank capacity of less than 20 gallons shall not be acceptable. # LADDER STORAGE / RACKS ## Rear Ladder Storage A ladder storage tunnel shall be provided beneath the aerial device frame work. There shall be access to the ladders via an opening at the rear. This tunnel shall be lined with .090” aluminum. The ladders will be held captive top and bottom by aluminum tracks and slide on friction reducing material. All ladders shall be removable individually without having to remove any other ladder. The ladder tunnel shall hold: 1225-A 35, 900-A 24, 875-A/DR 16, 775-A/DR 14 and 585-A 10 ## Bracket Horizontal Ladder Extension ladder mounting assembly shall consist of a 1/8” diamond plate boot bolted to the compartment top and a chrome plated handle to secure the ladder into the boot.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Location and type of ladder: over L1 for Little Giant model 17. # HANDRAILS / STEPS ## Slide-out Platform An Innovative Industries SlideMaster slide-out platform shall be provided. The platform shall utilize a SM3-MP-STEP slide assembly with a 600 lb. capacity and a 100% extension (or equivalent). Dual locks shall be provided to hold the step in the closed or open position. The top surface of the step shall be constructed of 1/8" aluminum tread plate. The stepping surface shall consist of a multi-directional, aggressive gripping surface incorporated into the tread plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8” (.125”). Gripping surfaces shall be circular in design, a minimum of 1” diameter and on centers not to exceed 4”. The NFPA pump throttle height requirement shall be measured from the top of the slide out platform on all aerials and from the ground on side mounted pump operator panels on non-aerial apparatus. The slide-out step shall be located below driver side pump panel. # MISC BODY OPTIONS ## Mud Flaps Black mud flaps with OEM logo shall be provided for the body wheel wells. ## Hose Bed Divider There shall be a hose bed divider provided the full fore-aft length of the hose bed. The hose bed divider shall be constructed of 1/4” (0.25”) smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
have a 3” radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose. The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads. **Hose Bed Divider Hand Hold** There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider. **Floor Matting** This unit shall have all applicable compartment floors, shelves, and trays covered with a heavy duty Dri-Dek brand Black floor matting. **Anodize Aluminum Trim** A anodize aluminum trim shall be located at the bottom edge of all body compartment openings including pump enclosure with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment. **Body Wheel Well** The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 1/8” (0.125”) aluminum treadplate. The fenderettes shall be bolt-on and shall be easily removable. The fenderette shall be constructed from .080" aluminum with a mirror finish. The fenerette shall be 2 1/2" (2.5") wide x 2 1/4" (2.25") tall with a 26 7/8" (26.875") radius. A "P" shaped rubber gasket shall be provided between the fenerette and wheel well body panel (as applicable).		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The wheel well liners shall be constructed of a 3/16” (.187”) composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface. **Corner Guard** Diamond plate corner guard for the rear compartment face forward of the side facing staircase(s) constructed of (.063”) aluminum treadplate. Guard shall wrap around corner. **Side Body Panels** The smooth body sides shall be Fiberglass Reinforced Panels (FRP). The panels shall be bonded and mechanically attached to the supporting extruded aluminum body structure. The panels shall be painted job color. **SCBA BOTTLE STORAGE** **SCBA Wheel Well Bottle Storage** The body wheel well area shall store up to eight (8) SCBA bottles- four (4) on the officer side and four (4) on the driver side. The bottles shall be secured in each storage area by a vertical hinged door which shall be secured in the closed position by a push button latch. The doors shall have a brushed stainless steel finish. Each storage area shall provide individual storage of a bottle and shall not allow forward or rearward movement of the bottle. The bottle(s) shall be removable from the storage area without the bottle(s) coming into contact with any surface area of the wheel well (NO EXCEPTIONS). **SCBA Strap** Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
ceiling directly inside the door opening at each bottle location. # PUMPS ## Pump Rating 7000 LPM The pump shall be rated at 7000 LPM. ## Fire Pump System The pump shall be a midship-mounted Hale QMAX single stage centrifugal pump. The pump shall be mounted on the chassis frame rails of commercial or custom truck chassis and have the capacity of 1,250 to 2,250 gallons per minute (U.S. GPM) NFPA 1900 rated performance, and shall be split-shaft driven from the truck transmission. The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 MPa). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump body shall be horizontally split in two sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping. The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency. The pump shaft shall be heat-treated, corrosion-resistant stainless steel and shall be rigidly supported by three (3) bearings for minimum deflection. The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure-balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash-lubricated. Pump shaft must be sealed with		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
double-lip oil seal to keep road dirt and water out of the gearbox. Two (2) 6” diameter suction ports with 6” NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps. **Gearbox – G Gearbox** Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of drive through torque of the engine system. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine. All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. (No exceptions.) The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump. For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operators panel adjacent to the throttle control. For manual transmissions, one green warning light will be provided for the driving compartment. All lights to have appropriate identification/instruction plates.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Discharge Manifold The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion. **Pump Shift** The pump shift shall be pneumatically-controlled using a power shifting cylinder. The power shift control shall be mounted in the cab and be labeled ”PUMP SHIFT”. A green indicator light shall be located in the cab and be labeled ”PUMP ENGAGED”. The light shall not activate until the pump shift has completed its full travel into pump engagement position. A second green indicator light shall be located in the cab and be labeled ”OK TO PUMP”. This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up). **Test Ports** Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump. **Gearbox Cooler** A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over. # PUMP CERTIFICATION ## Pump Certification The pump, when dry, shall be capable of taking suction and discharging water in accordance with with the edition of NFPA documented elsewhere in these		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
specifications. The pump shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in NFPA. The tests shall include, at a minimum, a piping hydrostatic test, pump test, pumping engine overload test, pressure control system test, priming device tests, vacuum test, and the water tank to pump flow test as outlined in NFPA. The pump shall deliver the percentage of rated capacities at pressures indicated below: • 100% of rated capacity at 150 psi net pump pressure • 100% of rated capacity at 165 psi net pump pressure • 70% of rated capacity at 200 psi net pump pressure • 50% of rated capacity at 250 psi net pump pressure A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine. A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer`s Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer. # PUMP OPTIONS ## Steamers, Flush+1 The pump 6" steamer intake(s) shall be mounted approximately 1” from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
module width and options selected. (Example 72" or 76" modules.) Location: driver's side, officer's side. **Zinc Anodes** The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump. **Inlet Valve** A Hale Master Intake Valve (MIV-E) shall be provided for the specified intake. The large diameter inlet valve shall be capable of achieving an NFPA test rating of 1500 GPM through a single 6” suction hose. The inlet valve shall be operated by a 12 VDC electric motor with a remote switch provided at the pump operator`s position. The 12 VDC motor shall be provided with an automatic resetting, thermally-compensated over-current protection circuit breaker to protect the 12 VDC motor and apparatus electrical system. The gear actuator on the valve will cycle from full closed to full open in not less than three (3) seconds. A hand controlled pump panel mounted manual override (knob style) shall be provided. An indicator light panel shall be located at the pump operator`s position to show valve open, closed, or traversing from open to closed. A built-in adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed. A 3/4” air bleeder valve shall be provided and controlled at the pump operator`s position.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A 1/4” water bleeder shall be supplied and controlled at the pump operator`s position. Location: driver side pump panel, officer side pump panel. **Mechanical Pump Seal** The midship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions. This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 psi. The mechanical seal assembly shall be 2 inches in diameter and consist of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat, with a Teflon back-up seal provided. Only one mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one piece pump shaft (no exceptions). A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation. **Master Drain, Air Operated** An air operated master drain valve shall be installed and operated from the pump operator`s panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal and air switch. The air master drain valve shall have six (6) individually-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI. The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices. **Additional Hale Primer**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
An additional primer valve shall be provided and installed on the officer side before master intake valve, driver side before master intake valve and controlled at the pump operator`s panel. One (1) priming control shall open the priming valve in conjunction with the priming valve that comes with the pump and start the priming motor. The priming valve shall be electronically interlocked to the ”Park Brake” circuit to allow priming of the pump before the pump is placed in gear. If plumbed to front or rear intakes the connection shall be at the highest point of the piping. **Pump Cooler** The pump shall have a 3/8” line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator`s panel by a Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag **Priming System** An electrically-driven Hale ESP priming pump shall be provided for the water pump. The primer shall be positive displacement rotary vane type that requires no lubricant. The primer motor shall be heat-treated, anodized aluminum specially coated for wear and corrosion resistance. One (1) priming control, located at the pump operator`s position, shall open the priming valve and start the priming motor. The priming valve shall be electronically interlocked to the ”Park Brake” circuit to allow priming of the pump before the pump is placed in gear. **Pump Shift - Electric** The pump shift shall be accomplished by two (2) push-button switches. One push button shall be for shifting		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
into pump mode and the other shall be for shifting the pump transmission back to road mode. The switches shall include LED lighting to indicate the active mode. An additional indicator light shall be located in the cab visible to the driver and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed into pump engagement position. A second indicator light shall be located in the cab visible to the driver and be labeled "OK TO PUMP". # INTAKES ## Left Intake 2.5 Akron Valve One (1) 2-1/2” suction inlet with a manually operated 2-1/2” Akron valve shall be provided on the left side pump panel. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2” NST female chrome inlet swivel, and shall be equipped with a chrome plated rockerlug plug with a retainer device. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss. A 3/4” bleeder valve assembly will be installed on the left side pump panel. **Right Intake 2.5 Akron Valve** One (1) 2-1/2” gated suction inlet with a manual operated Akron valve shall be installed in the right side pump panel with the valve body behind the panel. The valve control shall be located at the intake and shall visually indicate the position of the valve at all times. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2” NST female chrome inlet swivel and shall be equipped with a chrome plated rockerlug plug with a retainer device. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss. A 3/4” bleeder valve assembly will be installed on the right side pump panel. **DISCHARGES AND PRECONNECTS**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Front Jump Line 1.5 Akron Valve One (1) 1-1/2” preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2” heavy duty hose coming from the pump discharge manifold to a 2” FNPT x 1-1/2” MNST mechanical swivel hose connection to permit the use of the hose from either side of the apparatus. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator`s panel. The discharge shall be supplied with a Class 1 automatic 3/4” drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi. The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. **Front Bumper Discharge Swivel, Brass In Tray** There shall be a brass swivel provided for the front bumper discharge located in hose tray center front bumper on lower back wall.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
1.5 Single Crosslay Akron Valve [Qty: 2] One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2” brass swivel with a 1-1/2” hose connection to permit the use of hose from either side of the apparatus. The crosslay hose bed shall consist of a 2” heavy-duty hose coming from the pump discharge manifold to the 2” swivel. The hose shall be connected to a manually operated 2” Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. Location: crosslay 1 & 2. **Single Crosslay 2.5 Akron Valve** One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall have one (1) 2-1/2” mechanical swivel hose connection to permit the use of the hose from either side of the apparatus. The crosslay hose bed shall consist of a 2-1/2” heavy-duty hose coming from the pump discharge manifold to the 2-1/2” swivel. The hose shall be connected to a manually operated 2-1/2” Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. Location: crosslay 3. **Left Panel 2.5 Discharge Akron Valve** One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be provided at the left hand side pump panel. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. Location: left side discharge 1, left side discharge 2.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Right Panel 2.5 Discharge Akron Valve One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it. The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. Location: right side discharge 2. **Right Panel 3 Discharge Akron Valve** One (1) 3” discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel. The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. Location: right side discharge 1. **4" Waterway Discharge Electric Akron** A 4” diameter discharge with an electrically actuated Akron valve shall be provided from the pump to the aerial waterway. The valve shall be 4" Akron 8800HD series with bronze flat ball and polymer seals for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the brass ball when in a throttle position with water flowing. The valve shall be of the unique Akron Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing. The valve shall utilize an electric driven worm gear actuator. The valve may also be operated manually in case of electrical system failure. All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. **DISCHARGE OPTIONS** **IC Push/Pull Control** The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels. **Bleeder Drain Valve [Qty: 9]** The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage. **Discharge/Intake Bezel** Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezels are 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 feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards. **Akron Electric Valve 9333 Controller** An Akron Brass Style 9333 Valve Controller shall be provided with a five year manufacturer warranty. The display shall be a full color LCD display with a backlight and manual adjustment of the brightness as well as an auto-dimming option. The electric controls shall		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
provide true position feedback, requiring no clutches in the motor or current limiting. The unit shall be sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. The controller will provide an LCD display showing valve position indication and have up to three preset locations that can be user set and easily recalled upon each use. Valve position indication will be determined from true position feedback and indicate the exact position of the valve. Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation. Locate on pump operator panel to control waterway discharge. # PRESSURE GOVERNORS **Pump Pressure Governor** The apparatus shall be equipped with a Class 1 ”TOTAL PRESSURE GOVERNOR” (TPG) Integrated pump control system. The TPG shall have a weatherproof color display. The TPG will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The TPG is to operate as a pressure sensor (regulating) governor (PSG). The TPG shall display engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable. # GAUGES **GAUGE IC 10 LED WATER TANK LEVEL** One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LED`s) on the display module shall have a 3-		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility. The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability. The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an ”anti-slosh” feature. **GAUGE IC 10 LED FOAM TANK LEVEL** One (1) Innovative Controls brand foam tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the foam tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility. The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability. The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an ”anti-slosh” feature. **Pressure Gauge [Qty: 9]** Innovative Controls TC Series 2.5" (63MM) LED pressure gauge(s) shall be provided. Each gauge shall		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
have a glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauge shall be fully-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. Each gauge shall exceed (NFPA 1900 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments. The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube. The gauges shall display a range specified with enhanced black markings on a white dial. Color: Blue. **Pressure Gauge** Innovative Controls TC Series 4" (100MM) LED Master pressure gauges with dual bezel shall be provided. Includes test ports and alarm. Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
mechanisms, prevent lens condensation and ensure proper operation from –40°F to +160°F. Each gauge shall exceed (NFPA 1900 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments. The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube. The gauges shall display a range specified with enhanced black markings on a white dial. Color: Blue. **Pressure Gauge** Pump panel pressure gauges shall be 0-400 / Master Intake gauge shall be 30-0-400. **Dual Read Pressure Gauge** Pump panel pressure gauges shall be dual read (KPA/PSI). # FOAM SYSTEMS **FoamPro Foam System** There shall be a fully automatic 2002 FoamPro electronic direct injection foam proportioning system furnished and installed on the apparatus for the specified discharge(s). The system shall be capable of Class A foam concentrates and most Class B foam concentrates. The proportioning operation shall be based on an accurate direct measurement of water flow with no restriction. The proportioning system shall meet NFPA standards for foam proportioning systems and the design shall have passed testing against SAE automotive reliability standards appropriate for the		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
application. The foam system shall be installed in accordance with the manufacturer recommendations. The digital computer control display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system: Provide push-button control of foam proportioning rates from 0.1% to 10.0%, in 0.1% increments. Show current flow-per-minute of water Show total volume of water discharged during and after foam operations are completed Show total amount of foam concentrate consumed Simulate flow rates for manual operation Perform setup and diagnostic functions for the computer control microprocessor Flash a “low concentrate” warning when the foam concentrate tank(s) runs low Flash a “no concentrate” warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty The display shall have the capabilities when using a Hypro/FoamPro manual or electronic dual tank switching system of the following additional functions: • Display which foam concentrate tank is selected (tank A: PA or tank B: PB) • Separate default setting for foam concentrate injection rate. • Total amount of foam concentrate used from selected tank. • Dual foam concentrate foam pump calibration. FoamPro 2002 Maximum Water Flow Concentration GPM (L/min) 0.2% @ 2,500 (9,464) 0.5% @ 1,000 (3,785)		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
1.0% @ 500 (1,893) 3.0% @ 166 (628) The FoamPro 2002 system shall have a 12 volt, 3/4 hp ”TENV” electric motor designed for wet and high humidity environments, direct coupled to a positive displacement piston type foam pump with a rated capacity of .01 to 5.0 gpm with operating pressures up to 400 psi. **Foam System Certification** The foam system performance shall be tested and certified in compliance with the edition of NFPA documented elsewhere in these specifications. # FOAM SYSTEM OPTIONS **Foam System Plumbing** The specified foam system shall be plumbed to 1.5 first crosslay, 1.5 second crosslay, first 2.5 crosslay, center bumper front jump line. **Hale EZ-Fill Foam Tank Refill System** A Hale EZ-Fill foam pump shall be provided. The system shall include a 12 volt, self-priming pump that shall fill at up to 5 GPM for a single cell. The system shall be controlled by a control panel that shall feature smart-switch technology for easy "Fill/Flush/Fill" functions. A cam-lock quick-connect port shall be provided on the pump panel as applicable and shall connect with a clear wand suction hose for use with 5-gallon pail drafting operations. The suction hose shall be stored as required on the unit by the department and shall be equipped with integral strainer to prevent intake of unwanted debris. The control and quick-connect shall be located driver's side pump panel. # ELECTRICAL SYSTEMS		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Vehicle Data Recorder A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1900 and 2024 edition of NFPA 1900 (Annex A). The following data shall be monitored: • Vehicle speed MPH • Acceleration (from speedometer) MPH/Sec. • Deceleration (from speedometer) MPH/Sec. • Engine speed RPM • Engine throttle position % of full throttle • ABS Event On/Off • Seat occupied status Occupied Yes/No by position • Seat belt status Buckled Yes/No by position • Master Optical Warning Device Switch On/Off • Time: 24 hour time • Date: Year/Month/Day **Occupant Detection System** There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement. The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied. The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position. The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness. **Electrical Connection Protection**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected. The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to. **Multiplex Electrical System** **Electrical System** The apparatus shall incorporate a Weldon V-MUX powered by Digital Truck Designer multiplexing system. The system shall use active/standby architecture and communicate via J1939 CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA standards. The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards. Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions. **Multiplex System**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
For superior system integrity, the networked multiplex system shall meet the following minimum component requirements: • The network system shall use the J1939 protocol. • Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry. • All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors. • Load shedding power management (8 levels). • Switch input capability for chassis functions. • Responsible for lighting device activation. • Self-contained diagnostic indicators. • Wire harness as need to interface electrical devices with multiplex modules. • The grounds from each device should return to the main ground trunk in each sub harness by the use of ultrasonic splices. **Wiring** All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions. • NFPA (Specific edition documented elsewhere in these specifications) • SAE J1127 and J1127 • IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products) All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127. All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082” plus or minus .01”. The imprinted characters shall repeat at a distance not		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
greater than 3”. A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work. **Wiring Protection** The overall covering of the conductors shall be loom or braid. Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04” and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other. Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape. **Wiring Connectors** All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier’s component. The connectors and terminals shall be assembled per the connector/terminal manufacturer’s specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab. **Fast Idle System** A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output. **NFPA Required Testing of Electrical System** The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
delivery documentation per requirements of NFPA. The following minimum testing shall be completed by the apparatus manufacturer: **1. Reserve capacity test:** The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail. **2. Alternator performance test at idle:** The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure. **3. Alternator performance test at full load:** The total continuous electrical load shall be activated with the engine running up to the engine manufacturer`s governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in the NFPA Standard, or a system voltage of less than 11.7 volts DC for a 12-volt nominal system, for more than 120 seconds, shall be considered a test failure. **4. Low voltage alarm test:** Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12-volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure. **NFPA Required Documentation** The following documentation shall be provided on delivery of the apparatus: A. Documentation of the electrical system performance tests required above. B. A written load analysis, including: a. The nameplate rating of the alternator. b. The alternator rating under the conditions. c. Each specified component load. d. Individual intermittent loads. **Multiplex Display** The multiplex electrical system shall include a 7" UltraView color display. **The display shall have the following features:** • Bonded transmissive TFT LCD screen • Diagonal measurement of no less than 7” • J1939 Communications protocol capable • IP67 sealed front and rear • Three (3) video inputs for optional back-up camera(s) • Twelve (12) multi-function programmable tactal buttons • Home button • Menu button **Display screens shall be configured to include the following:** • Warning light switching • Work and scene light switching • Indicators for park brake, PTOs and aerial jacks down (if applicable)		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• Occupant detection indication • Specific door ajar indication • Clock • Access to the multiplex system diagnostics The display shall be located officer's side engine cover, driver's side engine cover. **HVAC Controls** The air conditioning and heating systems of the apparatus chassis cab shall be controlled through the multiplex electrical system`s color display(s). The system shall have the capability to provide automatic climate control. # LIGHT BARS **Light Bars** A pair of Federal Signal Corporation 25" LED Navigator light bars model NVG25-0001 shall be provided. Each bar shall contain two (2) SLR red/white rotating LEDs and one (1) red 4x6 Quadraflare forward facing LED. Lens configuration is all clear. The white LEDs shall be switched off in blocking right of way mode. The light bars shall be installed in the following location: front cab corners **Light Bar Mount** Two (2) pairs of 2" tall mounts shall be provided on the front mini light bars **Light Bar Mount** Two (2) pairs of 2" tall mounts shall be provided on the side facing mini light bars. **Light Bars**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A pair of Federal Signal Corporation 25" LED Navigator light bars model NVG25 shall be provided. Each bar shall contain three (3) 4x6 Quadraflare split red/white LEDs forward facing and one (1) 3x7 Quadraflare red LED side facing. Lens configuration is all clear. The light bar shall be installed in the following location: centered above rear cab doors. **WARNING LIGHTS** **Hazard (Door Ajar) Light** There shall be a 2” red LED hazard light installed as specified. The light shall be located center overhead. **Lower Level LED Warning Light Flash Rate** The lower level Federal Signal QuadraFlare and/or FireRay LED warning lights shall be set to DoubleFlash 150 - Simultaneous pattern. **Upper Rear Warning Lights** Two (2) Federal Signal Navigator model NVG10 warning light shall be provided. One (1) Quadraflare QL64 LED light and one (1) Quadraflare QL73 LED light shall be provided in each of the lights. The LEDs shall be RED with CLEAR lenses. The lenses shall be clear. The lights shall be located rear upper body on aerial style brackets to meet Zone C upper requirements. **Warning Lights** Two (2) Federal Signal FireRay model FR6 LED (Light Emitting Diode) light heads with bezels shall be provided. The lights shall be RED with RED lenses, RED with RED lenses, RED with RED lenses, RED with RED lenses, AMBER with AMBER lenses, RED with RED lenses, RED with RED lenses.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The flashing lights shall be surface mounted where specified. Location: (1) each side NFPA1900 required lower zone front facing, (1) each side NFPA1900 required lower zone forward side facing, (1) each side NFPA1900 required lower zone midship side facing, (1) each side NFPA1900 required lower zone rear facing, (1) each side of body rear facing up high, (1) each side of cab centered over wheel well, (1) each side in front quad inboard of NFPA warning light. **Warning Lights** Two (2) Federal Signal Micro Pulse Ultra model MPS3 LED light heads RED with CLEAR lenses, RED with CLEAR lenses shall be provided. Note: MicroPulse Series lights are only available with clear lenses. Location: (1) each side NFPA1900 required lower zone rear side facing, (1) each side in pump module rubrail if equipped. **DIRECTIONAL LIGHT BARS** **Directional Light Bar Control Location** The directional light bar control head shall be located in the center overhead console offset to driver side. **Directional Traffic Warning Light** A Federal Signal MicroPulse SignalMaster model MPSUSM32 light bar with clear lens shall be installed at the rear of the apparatus. The unit shall be 32.0” long with six (6) MicroPulse Ultra 12 LED light heads. Four operating modes are available: left arrow, right arrow, split (center/out) and a flashing warning pattern. A Federal 331105 control shall be provided with LED indicators to emulate the warning pattern. Light bar dimensions are 32.0” long x 3.40” deep x 2.60" high.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
SIRENS **Electronic Siren Control Location** The electronic siren control shall be located in the center overhead. **Electronic Siren** A Powercall model UDX7 siren shall be installed in the cab. The siren shall feature an illuminated control panel with rotary switch for mode selection, three (3) push button switches for air horn, phaser and intersection modes, and a noise cancelling PA microphone. The siren shall also feature a USB port for additional tones from an external source. Operating modes include Manual, USB, Wail, Yelp, Hi-Lo, Powercall, Whoop and shall include a Tap feature. Siren is to be connected to one (1) 200 watt or up to two (2) 100W RMS speaker(s). **Mechanical Siren** A chrome plated and pedestal mounted Federal Q2B-P coaster siren shall be installed on top of the front bumper extension. An electric siren brake switch shall be located in the cab accessible to the driver. The siren shall be located driver side front bumper. **Secondary Siren** A Federal Rumbler intersection clearing system shall be installed. The Rumber secondary siren shall include an additional amplifier that senses the currently enabled siren tone signal, reduce the signals' frequency by 75%, and then amplify the sound through a pair of high output woofers. The system shall include a timer to allow the tone to sound for eight seconds, and then automatically shut off.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The system shall include an amplifier, timer, and two (2) subwoofer speakers mounted under the vehicle. # SPEAKERS ### Siren Speaker One (1) Federal Signal model ES100 Dynamax 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model MSFMT with ”OEM” grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker. Speaker dimensions shall be: 5.5 in. high x 5.9 in. wide x 2.5 in. deep. Weight = 5.5 lbs. The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1900 requirements. The speaker shall be located driver side front bumper, officer side front bumper. # DOT LIGHTING ### License Plate Light One (1) Truck-Lite model 15205 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body. ### Marker Lights One (1) pair of Britax model L427.203L.12V LED amber/red marker rubber housed lights shall be provided. The lights shall be located on the rear body corners mounted in the down angle position. The red lenses shall illuminate to the rear of the apparatus and the amber shall illuminate to the front of the apparatus. The lights shall be wired to the marker light circuit. ### Tail Lights		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
One (1) Federal Signal FireRay model FR6-BTT red LED (Light Emitting Diode) light, one (1) Federal Signal FireRay model FR6-ARROW amber LED light and one (1) Federal Signal FireRay model FR6-BACKUP white LED light shall be installed in a 4 light housing in a vertical position each side at rear and wired with weatherproof connectors. Light functions shall be as follows: • LED red running light with red brake light in upper position. • LED amber populated arrow pattern turn signal in middle position. • LED white back-up light in lower position. A one-piece chrome trim casting shall be mounted around the three (3) individual lights in a vertical position. The lower space will be used by the 6” x 4” lower NFPA warning light. **License Plate Bracket** There shall be bracket fabricated from aluminum smooth plate sanded, secured to rear of the body to accommodate a license plate. **LED Marker Lights** LED clearance/marker lights shall be installed on the apparatus. Body and platform marker lights shall be 3/4" diameter grommet mounted LED. **Upper Cab:** • Five (5) amber LED clearance lights on the cab roof. **Lower Cab:** • One (1) amber LED side turn/marker each side of cab ahead of the front door hinge. **Upper Body:** • One (1) red LED clearance light each side, rear of body to the side. **Lower Body:** • Three (3) red LED clearance lights centered at rear,		

recessed in the rubrail.
• One (1) red LED clearance light each side at the trailing edge of the apparatus body, recessed in the rubrail.
• One (1) amber LED clearance light each side front of body just in front of rear wheels, recessed in the rubrail.
• Two (2) amber LED (one (1) clearance; one (1) auxiliary turn) lights each side front of body, recessed in the rubrail.

Aerial Platform:
• Three (3) amber LED clearance lights centered on the front lower section of the aerial platform.

LIGHTS - COMPARTMENT, STEP & GROUND

Compartment Light Package

Two (2) TecNiq E45 LED compartment light strip shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights, located two (2) each side of the body.

Each light bar shall include super bright white LEDs mounted to circuit boards encapsulated in an aluminum extrusion using TecSeal with TPE sealed end caps. The lights shall produce approx. 600 lumens per foot and shall be provided with a limited lifetime warranty.

Compartment lights shall be wired to a master on/off switch located in the cab.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
requirements. The lights shall be TecNiq model T440 4” circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector. Ground area lights shall be switched from the cab dash with the work light switch. One (1) ground light shall be supplied under each side of the front bumper extension if equipped. Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened. **Step Lights** The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the steps around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4” circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life (a smaller light may be used if space is limited). The wiring connections shall be made with a weather resistant plug in style connector. The step lights shall be switched from the cab dash with the work light switch. **Additional Ground Light** An additional recessed TecNiq T440 4" LED light with clear lens shall be provided to illuminate the ground at the location specified. Location: Below L2, R2. **Ladder Tunnel Light [Qty: 2]** An EON LED light shall be provided to illuminate the ladder tunnel at the opening. The light shall be wired through the door ajar circuit on the ladder tunnel door.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
LIGHTS - DECK AND SCENE **Deck/Scene Light Wired to Back-Up Lights** The rear deck or scene lights shall be activated when the chassis is placed in reverse to provide additional lighting, in addition to the back-up lights, when backing the vehicle. **Cab Scene Light Switching** The cab scene lights shall be wired to activate through the appropriate side cab door ajar switch. This application allows the cab scene lights to be used as additional illumination of the ground area for personnel entering or exiting the vehicle. The switching for this application is in addition to the standard cab scene light switching. **Rear Work Lights** Two (2) FireTech LED lights model FT-WL3500-FT-W shall be installed. The lights shall produce 1,981 effective lumens and have a white housing. The lights shall be switched with work light switch in the cab. Location: (1) each side of body rear facing up high. **Hosebed Light** A FireTech LED light model WL2000 with white housing shall be installed at the front of the hosebed to provide hosebed lighting per current NFPA 1900. The hosebed light shall be switched with work light switch in the cab. **Crosslay Light** A FireTech LED light model WL2000 with white housing shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1900. The crosslay light shall be switched with work light switch in the cab.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Scene Lights Two (2) FireTech model FT-GESM, Guardian Elite LED Surface Mount scene lights with chrome flanges (when required) shall be provided. Part #: FT-GESM Voltage Range: 9-32 V DC Total Amperage @ 12V DC: 10.42 RAW Lumens: 20,500 Effective Lumens: 12,290 Lights shall be located (1) each side of cab, rearward of forward doors, up high and switched in cab (side facing lights switched separately). **LIGHTS - NON-WARNING** **Pump Compartment LED Light** An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab. **LED Pump Panel Light Package** Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set. **Engine Compartment Light** There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1900. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lense, sealed / waterproof housing and integral switch. The light wiring circuit shall activate when the cab is tilted and master power is switched on.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
CONTROLS / SWITCHES **Door Ajar Alarm** An audible alarm shall be provided through the multiplex display(s) in the cab wired into the door ajar or indicator. **Additional Switch** A 12 volt switch shall be provided. The switch shall be located driver rear of body for rear work lights. **Three Way Switching** An additional momentary switch with circuitry shall be provided to allow on/off operation of specified device from remote locations. The remote switch shall be mounted programmed to multiplex display(s) for aerial 12v tip lights. **Programming Instructions** Additional programming shall be provided. Additional programming shall be: ground lights wired through reverse IATS. **CAMERAS / INTERCOM** **Camera, Officer Side** A Safety Vision model SV-622RS camera will be located on the officer side front corner of the cab. This camera will be interlocked with the turn indicator. The system shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Requires the option for the Safety Vision back-up camera system which consists of the colored monitor, back-up camera and control box. **Camera, Driver Side** A Safety Vision model SV-622LS camera will be located on the driver side front corner of the cab. This camera will be interlocked with the turn indicator. The system shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator. Requires the option for the Safety Vision back-up camera system which consists of the colored monitor, back-up camera and control box. **Two-Way Intercom** A Fire Research ACT two-way intercom system shall be installed to provide communications between the turntable control station and the aerial tip. The intercom system shall include two (2) speakers and two (2) control modules; one (1) with a push-to-talk button at the turntable control station and one (1) hands free at the aerial tip. The control modules shall have push-button volume control and a LED volume display. The hands free module shall constantly transmit to the other module unless the push-to-talk button is pressed. The intercom shall have active noise cancellation and be designed for exterior use. **Camera Back-Up** There shall be a Safety Vision camera model number SV-625B-KIT provided. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view with audio. The camera shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
vibration resulting in video loss to vehicle operator. The camera shall be interlocked with the chassis transmission. When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen. **Remote Head for Intercom** A remote head Firecom intercom model 5200DRH shall be provided. The remote head shall control all functions of the Firecom intercom system from a secondary location. The head shall be located on pump operator's panel. **Intercom Wireless Cab** A FireCom wireless intercom package shall be installed within the cab interior. One (1) model 5100D digital intercom with touch pad adjustable volume with advanced digital noise reduction circuitry. The intercom uses a durable membrane switch plate to control volume and change radios. This intercom provides hearing loss protection that can occur from exposure to high noise levels. The system contains: • One (1) FireCom model 5100D single radio monitor shall be provided in the cab (two (2) year limited warranty). • Two (2) base transmit unit with radio/intercom only transmission, FireCom part number WB505R shall be included. • Up to ten (10) NFPA compliant headset hooks, FireCom part number 108-0678-00 shall be provided at each seated position. **Headsets shall be ordered separately and are not included as part of the Intercom package.** **MISC ELECTRICAL**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Back-Up Alarm An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear. **Back-Up Sensor System** A PORON rear obstacle detection system with voice distance indication shall be installed on the apparatus. The model MAX1 system shall include four (4) heavy duty stainless steel sensors located at the rear of the vehicle, a weatherproof control box and a speaker in the cab near the driver. The system shall "warn" the driver with a "beeping" sound indicating potential obstacles at the rear of the vehicle and a clear voice shall "tell" the operator with a countdown of the remaining distance in feet as the vehicle reverses. **12 Volt DC Power Distribution Module** A Blue Sea model 5032 12 place, split bus fuse block with ground, 12 volt DC power distribution module shall be provided. The module shall provide two isolated groups of six circuits, and shall be wired through switched hot and battery hot, and include a battery ground. Location: L1 high on forward wall, behind officer's seat. **GENERATOR** **Hydraulic Generator** A Harrison model LPG 6KW hydraulic generator system shall be supplied and installed officer side of open storage area. The generator shall come with an axial piston hydraulic pump, reservoir, cooler, voltage regulator and a gauge panel. The gauge panel shall display voltage, hour meter, frequency, and amperage. The hydraulic motor-generator system shall be modular design with dimensions of approximately 40” long x		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
18.6” wide x 14.1” high and shall be permanently mounted on the apparatus. The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO). A generator control / PTO engage switch shall be mounted on the cab instrument panel to engage the PTO and start the generator. **Ratings and Capacity** Rating: 6,000 watts continuous Volts: 120/240 volts Phase: Single, 4-wire Frequency: 60 Hz Amps: 25 amps at 240 volts, 50 amps at 120 volts Engine Speed at Engagement: Idle Pump Speed Operating Range: 980 to 3300 RPM Weight: Approximately 230 lbs. **Testing** The generator shall be tested in accordance with current NFPA 1900 standards. Notes: *All ratings and capacities shall be derived utilizing current NFPA 1900 test parameters. *Extreme ambient temperatures could affect generator performance. # GENERATOR TEST ## Line Voltage Power Source Testing The line voltage power source (generator and / or inverter) shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions and testing of the power source shall be as outlined in NFPA. The test shall include operating the power source for two hours at 100% of the rated load. Power source voltage, amps, frequency shall be monitored. The prime		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
mover`s oil pressure, water temperature, transmission temperature (if applicable) and power source hydraulic fluid temperature (if applicable) shall be monitored during testing. The results of the test shall be recorded and provided with delivery documentation. # BREAKER BOXES ### Auto Transfer Switch An automatic transfer switch shall be installed to allow all interior receptacles to be powered either by the shore power receptacle or the on-board generator. The system shall include an eight (8) place breaker box for the interior receptacles. Locate adjacent to the main breaker box or as specified. ### Circuit Breaker Panel An eight (8) place breaker box with up to six (6) appropriately sized ground-fault interrupter circuit breakers shall be supplied. The breaker box will include a master breaker sized according to the generator output which will occupy two (2) places. The breaker box will be located in the specified compartment, not to exceed 12` run of wire. Dimensions: 12.50” high x 8.88” wide x 3.80” deep. Location: L1 back wall above jack access panel. # LIGHTS - AREA ### 120V LED Flood Light Fire Research Spectra model SPA530-K20-SW-H side mount push-up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
extrusion and qualify as an NFPA compliant hand rail. The pole mounting brackets shall have a 3-1/2” offset. Wiring shall extend from the pole bottom with a 4 ft. retractile cord. The lamp head shall have sixty (60) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 120 volts AC, draw 2 amps, and generate 20,000 lumens of light. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamp head shall be no more than 5-7/8" high by 14" wide by 3-1/2" deep and have a heat resistant handle. The lamp head and mounting arm shall be powder coated. The LED scene light shall be for fire service use. Fire Research Spectra-SW option raised pole hazard light switch for a 530 pole shall be installed. The magnetic switch shall be in a cylindrical housing clamped on the outer pole. A magnet shall be mounted in the extension pole. The switch contacts shall close when the pole is raised. Location: officer side back of cab, driver side back of cab. **Scene Light** A Fire Research Spectra LED 12V model SPA570-Q20 top mount fixed pedestal light shall be provided includes switch(es) accessible to driver (driver and officer side facing lights switched seperately). The pedestal shall allow the lamp head to rotate 450 degrees and have a self adjusting friction brake to prevent arbitrary rotation. The pedestal shall have a round mounting base. Wiring shall extend from the pedestal bottom. The lamphead shall have eighty four (84) ultra-bright white LEDs, 72 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 12 volts DC, draw 18 amps, and generate 20,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead shall be no more than 5 7/8" high by 14" wide by 3 1/2" deep and have a		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
heat resistant handle. The lamphead and mounting arm shall be powder coated. The LED scene light shall be for fire service use. Location: driver side forward compartment top, officer side forward compartment top. # RECEPTACLES ### Receptacle A 20 amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacle with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source. Location: In cab officer side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush), L2 high on forward wall, R1 high on forward wall, R2 high on forward wall, L1 upper foward wall. # ELECTRIC CORD REELS ### Rollers, Cord Reel Rollers, captive for cord reel mounted on reel. Stainless steel cord reel rollers shall be installed and located on the reel. The rollers shall facilitate smooth removal of the electric cord. {May include a bracket (as required)} ### Electric Cord Reel Hannay electric rewind cord reel(s) (ECR 1616-17-18) shall be installed and located R3 offset forward. The reel(s) shall include 200`of yellow 10 gauge 3 conductor type SOOW cord. The cord shall be rated at 20 amps @ 110 volts. The end of the cord shall be		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
terminated for the installation of a department required connector. **Cord Connector** A Daniel Woodhead 20 amp, 110 volt (NEMA L5-20) twist lock female cord connector model #27W47 shall be installed as specified. Location: R3 offset forward. **Circle D Mounting Box** A Circle D model #213 cast aluminum mounting box shall be installed as specified for the Circle D junction box. Mount located for box with reel in or on R3 offset forward. **Electrical Junction Box** A Circle-D model PF51G four outlet electrical junction box shall be provided and shall have an integral pilot light to indicate electrical current. The unit shall be equipped with two (2) 120 volt 20 amp NEMA L5-20R twist-lock receptacles and two (2) 120 volt 15 amp NEMA 5-15R straight blade receptacles, each with a hinged weatherproof cover. Located on cord for reel in or on R3 offset forward. **Cord Reel Rewind Switch** A heavy duty rubber covered electric reel rewind button shall be installed on wall near cord reel. **Cord Connector** A mating connector for the junction box shall be installed as specified. Requires a seperately added connector on the cord reel and a seperately added junction box.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Location: R3 offset forward # AERIAL MODEL ## 95-Platform Aerial **Elevating Platform Requirements** It is the intent of these specifications to describe a telescopic elevating platform of the open truss design that is compliant with the current edition of NFPA 1900. Some portions of this specification exceed minimum NFPA recommendations and are to be considered a minimum requirement to be met. The elevating platform shall consist of three (3) extruded aluminum telescopic ladder sections operating from -6 degrees to 80 degrees and designed to provide continuous egress for firefighters and civilians from an elevated position to the turntable. The elevating platform shall have a vertical height of 92ft at full extension and elevation as defined in NFPA 1900. The rated horizontal reach shall be 82.5ft. The measurement shall be from the outer edge of the platform handrail at full extension to the centerline of turntable rotation as defined in NFPA 1900. The aerial shall have a maximum stabilizer spread of 13 feet 8 inches from pin to pin with the stabilizers deployed to maximum extension. The aerial platform shall be rated to provide full operating capacities in up to 35 mph wind conditions. **Aluminum Elevating Platform** The aerial ladder shall exceed the NFPA 1900 elevating platform requirements as detailed in these specifications. To ensure a high strength-to-weight ratio and an inherent corrosion resistance the aerial device shall be completely constructed of high strength aluminum. All side rails, rungs, handrails, uprights and K-braces shall be made of structural 6061T6 aluminum		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
alloy extrusions. All material shall be tested and certified by the material supplier. All ladder sections shall be semi-automatically welded by inert gas shielded arc welding methods using 5356 aluminum alloy welding wire. Structural rivets or bolts shall not be utilized in the ladder weldment sections. Due to the unpredictable nature of fireground operations, a minimum safety factor of 2.5 to 1 is desired. This structural safety factor shall apply to all structural aerial components including turntable and torque box stabilizer components. Definition of the structural safety factor shall be as outlined in the current edition of NFPA 1900: **DL** = Dead load stress. Stress produced by the weight of the aerial device and all permanently attached components. **RL** = Rated capacity stress. Stress produced by the rated capacity load of the ladder. **WL** = Water load stress. Stress produced by nozzle reaction force and the weight of water in the water delivery system. **FY** = Material yield strength. The stress at which material exhibits permanent deformation. 2.5 x DL + 2.5 x RL + WL equal to/less than FY The minimum NFPA specification is exceeded in this paragraph by requiring safety margin above 2 to 1 while flowing water. The stability factor or tip over safety margin shall be a minimum of 1.5 to 1 as defined by NFPA 1900. An independent engineering firm shall verify the aerial safety factor. Design verification shall include computer modeling and analysis, and extensive strain gauge testing performed by an independent registered professional engineer. Verification shall include written certification from the independent engineering firm made available by the manufacturer upon request from the purchaser. All welding of aerial components, including the aerial ladder sections, turntable, torque box and outriggers		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
shall be performed by welders who are certified to American Welding Society Standards D1.1, D1.2 and D1.3. The weldment assemblies of each production unit shall be tested visually and mechanically by an ASNT certified level II non-destructive test technician to comply with NFPA 1900. Testing procedures shall conform to the American Welding Society Standard B1.10 Guide for non-destructive testing. Test methods may include dye penetrate, ultrasound, and magnetic particle where applicable. Each ladder section shall consist of two (2) heavy extruded aluminum side rails and a combination of aluminum rungs, tubular diagonals, verticals and two (2) full-length handrails. The rungs on all sections shall be K-braced for maximum lateral stability. This K-bracing shall extend to the center of each rung to minimize ladder side deflection. The ladder rungs shall be designed to eliminate the need for rubber rung covers. The rungs shall be spaced on 14 inch centers and have integral skid-resistant surfaces as outlined in NFPA 1900. An oval-shaped rung shall be utilized to provide a larger step surface at low angles and more comfortable grip at elevated positions. The minimum design load shall be 500 pounds distributed over a 3 1/2 ” wide area per rung as outlined in NFPA 1900. The aerial ladder shall exceed NFPA 1900 governing the minimum ladder section width and handrail height. **Section Width Height** Base Section 43-3/4” 33-1/2” Second Section 36” 28-1/2” Fly Section 29-3/4” 25” **Firefighting Platform**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The platform shall be entirely constructed of aluminum and mounted to the end of the fly section. The inside of the platform shall measure 34.5'' long x 66.25'' wide and contain 14 square feet of floor space. A continuous railing with 42'' high side rails shall be supplied on all sides of the platform. There shall be no openings below the handrail larger than 24`` in either direction. The platform shall be constructed using a perimeter pipe system to carry water and serve as a structural component of the platform. The design of the platform shall minimize the distance between ladder center line and platform bottom heat shield. This requirement is to provide maximum visibility for the driver. A 4`` high kick plate and grated floor assembly shall be supplied on the platform floor. The grated floor shall prevent water accumulation in the platform. These requirements are detailed in NFPA 1900. A reflective aluminum heat shield shall be supplied on the front, bottom, sides, and rear of the platform as outlined in NFPA 1900. A step shall be supplied over the pipe system around the front and sides of the platform for easy egress. This step shall be 9" deep and provide an additional 6.5 square feet of platform floor space. The platform shall have three (3) gates for entry and exit, exceeding the two (2) required by NFPA 1900. Two (2) of the gates shall be mounted on the front corners of the platform. The front gates shall be 20.5" wide with inward swinging spring-loaded doors. Each front door shall have an exterior mounted self latching handle. The third platform access shall be at the rear of the platform to enter from the ladder. A Fire Research Aerial Saver shall be mounted in the opening with a loop that extends under the bar. The bar shall slide up or in, but not out toward the base. A platform control station shall be supplied as outlined in NFPA 1900. The station shall have the operational controls for the aerial and shall be controlled from the base master operator`s position. The control station shall be mounted in the center of the platform over the water monitor. Tip controls shall include aerial control		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
levers, monitor controls, water curtain, fast idle, rungs aligned light, engine stop, controller power and platform leveling switches **Fall Protection Anchors** There shall be anchorage points for fall protection provided in the platform to meet the current edition of NFPA 1900. **Platform Lifting Eyes** A pair of lifting eyes shall be provided below the rear of the platform. The lifting eyes shall be integral to the platform structure and allow for a load of 375 pounds each (750 pounds total). **Platform Leveling System** An automatic platform leveling system shall be supplied as outlined in NFPA 1900. The system shall provide automatic leveling through a dual redundant hydraulic cylinder system. The system shall incorporate four (4) hydraulic cylinders to level the platform. The 2” bore cylinders shall be mounted on each side of the base section and the fly section. The system shall utilize oil exchange between the cylinders to provide smooth leveling at all operating positions. The system shall have manual control at the base and platform to adjust platform pitch. The system shall be supplied with load holding valves on the upper cylinders to prevent movement of the platform in the event of a ruptured hydraulic hose. **Ladder Extension Mechanism** Both power extension and retraction shall be furnished and meet the requirements of NFPA 1900. Extension shall be by way of two (2) extending cylinders mounted on the underside of the base section of the ladder. **Extension Cylinder Size** Bore 4” Stroke 94”		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The cylinders shall operate through a block and tackle cable arrangement to extend and retract the ladder. Maximum extension of the ladder is to be automatically limited by the stroke of the cylinders. The normal operating cable safety factor shall be 5:1 and the stall safety factor shall be 2:1 based on the breaking strength of the cables. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used shall be 1 to 12. The cables shall be treated with Pre-Lube 6 for increased service life. **Ladder Cable Size** 1st section (4 cables - 2 extend, 2 retract) 5/8” 6 x 19 galvanized cable 2nd section (4 cables - 2 extend, 2 retract) 7/16” 6 x 19 galvanized cable The ladder assembly shall consist of three (3) separate weldments that shall extend and retract within each other. Nylatron NSM slide pads shall be utilized between each section to minimize friction. Nylatron NSM slide pads shall be installed at the tip of the lower two sections to accommodate the sliding loads as the ladder is extended. **Aerial Extension Indicator** Reflective tape stripes shall be installed on the ladder top handrail of the base section to indicate extension in 5` increments. Numbers shall be supplied at 10` increments. A reflective dot on the base of the 2nd section shall provide a visual reference for the operator to estimate aerial elevation. **Aerial Finish** To reduce maintenance expense the aerial shall have a natural aluminum swirled finish. Visible inspection of all ladder weld joints shall be possible without having to remove paint or body filler to reveal the weld bead. **Operation Times** The aerial shall complete the NFPA 1900 time test in no more than 150 seconds. This test involves raising the aerial from the bedded position to full elevation and		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
extension and rotating to 90 degrees. This test is to begin with the stabilizers deployed. Time to extend ladder maximum 55 seconds Time to retract ladder maximum 55 seconds Time to raise ladder maximum 85 seconds Time to lower ladder maximum 65 seconds Time to rotate 180 degrees maximum 105 seconds **Elevating Platform Rated Capacity** The aerial device shall have a rated capacity of 1025 lbs. The rated capacity shall include 750 lbs. in personnel allowance and 275 lbs. for equipment mounted at the tip of the aerial. The aerial device shall be rated in multiple configurations as outlined in NFPA 1900. The elevating platform shall be capable of delivering up to 2000 GPM master stream from the platform while carrying a minimum of 500 lbs. A sign mounted at the base of the aerial shall communicate the following ratings in the unsupported fully extended configuration while maintaining a 2.5 to 1 safety margin as defined in NFPA 1900. The loads in each configuration are in addition to 275 lbs. of equipment mounted at the tip. Condition #1- Tip load only, no water flowing **Elevation Capacity Pounds** -6 to 80 degrees 3 people 750 lbs. Condition #2- Distributed loads no water flowing. (These include two people in the platform) **Elevation Capacity Pounds**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
-6 to 20 degrees 4 people 1000 lbs. 21 to 35 degrees 6 people 1500 lbs. 36 to 50 degrees 10 people 2500 lbs. 51 to 80 degrees 12 people 3000 lbs. Condition #3- Platform tip load while flowing pre-piped waterway **Elevation Capacity Pounds** -6 to 80 degrees 2 people 500 lbs. **Hydraulic System** The hydraulic plumbing shall consist of hydraulic stainless steel tubing wherever possible in order to: • Eliminate hose wear. • Eliminate the corrosion associated with galvanized steel tubing. • Provide a stronger medium to carry the hydraulic fluid. An interlock device shall be provided to prevent activation of the aerial ladder hydraulic pump until either the transmission is placed in neutral and the parking brake is set, or the transmission is placed in drive and the rear driveline is disengaged. The hydraulic system shall be of the latest design and incorporate features to minimize heat build up and provide smooth control of the aerial ladder. The system shall meet the performance requirement in NFPA 19.19.6 and 19.19.7, which requires adequate cooling under 2 1/2 hours of operations. To control operating system temperature a hydraulic oil cooler shall be supplied. The air to oil cooler shall be mounted on the turntable so as not to reduce the cooling capacity of the engine. A 12-volt fan shall move air across a tube and		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
fin radiator system. The cooler shall be mounted clear of the operator`s control console. All hydraulic components that are non-sealing whose failure could result in the movement of the aerial shall comply with NFPA 1900 and have burst strength of 4 to 1. Dynamic sealing components whose failure could cause aerial movement shall have a margin of 2 to 1 on maximum operating pressure per NFPA 1900. All hydraulic hoses, tubes, and connections shall have minimum burst strength of 3 to 1 per NFPA 1900. Hydraulic power for all operations shall be supplied by a chassis-mounted positive displacement pump for consistent pressure and rapid response. The positive displacement vane pump shall be able to supply 21 GPM at a maximum pressure of 3000 psi. The system shall operate between 1000 and 2500 psi with flow controls to protect hydraulic components and incorporate a relief valve set at 2800 psi to prevent over pressurization. The hydraulic system shall consist of a 60 gallon reservoir mounted to the torque box and plumbed to the hydraulic pump. The tank shall be supplied with a removable top to access tank strainer filter. There shall be plumbing for a supply and return line and a tank drain on the reservoir. Gated valves under the tank shall facilitate filter changes. The hydraulic system shall use 5w-20 multi-weight, SAE 32 grade oil and incorporate the following filters to provide dependable service: Reservoir Breather: 10-micron Magnetic Reservoir Strainer: 125-mesh Pressure Filter (Torque Box): 3-micron Return Filter: 10-micron The aerial hydraulic system shall be designed in such a manner that a hydraulic pump failure or line rupture shall not allow the aerial or outriggers to lose position. Hydraulic holding valves shall be mounted directly on cylinders. To ensure reliable performance of holding		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
valves no hoses shall be permitted between a holding valve and cylinder. The hydraulic system shall be designed with an auxiliary power unit meeting the guidelines of NFPA 1900. The auxiliary power unit shall be two (2) 12-volt pumps connected to the chassis electrical system. The pumps shall provide operation at reduced speeds to store the aerial device and stabilizers for road transportation. Self-centering switches shall be provided at the turntable and each stabilizer control station to activate the system. The system shall be designed to provide a minimum of five (5) minutes of hydraulic power to operate functions. Hydraulic power to the ladder shall be transferred from the torque box by a hydraulic swivel. **Aerial Torque Box** The aerial shall utilize an integral torque box design. The integral torque box design shall serve to carry the chassis, body and aerial device as an integrated system. The system design shall provide a lower center of gravity to enhance road performance, a mounting location for under-slung stabilizers, and additional space for body compartments. The strength of the torque box shall be a minimum 12.6 million-inch pounds resistance to bending moment. The stabilizers and turntable supports shall be welded directly to the torque box. **Stabilization** The unit shall be equipped with two sets of extendable criss-cross under-slung stabilizers. The stabilizers shall have a spread of 13 feet 8 inches centerline to centerline of the stabilizer pads when fully extended. One set of stabilizers shall be mounted in the forward body area and a second set close to the rear axle to minimize impact on departure angle. The stabilizers shall have an inner and outer tube that slide on low friction pads for deployment. The stabilizers shall have a tip over safety margin of 1 1/2 times the rated load imposed by the aerial in any position the aerial device can be placed as outlined in NFPA 1900. The apparatus stabilization shall be accomplished without the		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
assistance of the chassis suspension or tires in contact with the ground. The aerial shall be able to sustain a 1 1/3 to 1 rated load on a 5 degree slope downward in the position most likely to cause overturning as outlined in NFPA 1900. The maximum ground slope the apparatus can be set up on is 12 percent. On the 12 percent slope the apparatus can be leveled within a 6 percent operating range for the apparatus. The cylinders shall be supplied with dual pilot-operated check valves on each stabilizer cylinder to hold the cylinder in the stowed or working position should a charged line be severed at any point in the hydraulic system. The stabilizers shall level side to side, corner to corner and front to rear on uneven terrain. Stabilizers shall contain safety lock valves. This assures there will be no ”leak down” of stabilizer legs. Mechanical pins are not required. This feature contributes to efficient set-up and field operation. The stabilizer lift cylinders shall be sized to maximize ground penetration. The lift cylinders shall be mounted on the side of the torque box for protection and shall have the following dimensions: Bore: 7” Stroke: 9-1/2” The stabilizer extension cylinders shall have the following dimensions: Bore: 2” Stroke: 41-1/2” Each stabilizer that can be extended from the body shall be supplied with a red warning light as outlined in NFPA 1900. A stabilizer extended warning light shall be supplied in the cab to warn the driver of an extended stabilizer condition as outlined in NFPA 1900. A floodlight shall be supplied in each stabilizer location to illuminate the stabilizer and ground. The light shall automatically turn on with the deployment of a stabilizer.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The stabilizer ground contact area for each foot pad shall be 10” x 14”. When operating with auxiliary jacks pads, the ground pressure shall not exceed 100 psi when the apparatus is fully loaded and the aerial device is carrying its rated capacity in every position, as outlined in NFPA 1900. **Stabilizer Controls** Four (4) electric solenoid valves shall control the stabilizers. The control switches shall be located at the rear of the apparatus, so the operator may observe the stabilizers during deployment. An audible alarm with a minimum 87 dBA shall also sound while the stabilizers are in motion. Stabilizer deployment shall be completed in less than 60 seconds. There shall be an interlock that prevents the operation of the ladder until the stabilizers are down and properly set as outlined in NFPA 1900. Four (4) micro-switches, one (1) on each jackleg, shall sense when all four (4) jack feet are in firm contact with the ground. This condition shall be indicated when all four (4) yellow jacks-down indicator lights are on and the green interlock light is on. When the apparatus has been leveled a manual transfer switch shall be used to shift hydraulic power to ladder operations. The interlock system shall have a manual override with access through a door on the rear control panel. To simplify leveling the apparatus, two (2) color-coded level indicators shall be supplied at the rear of the apparatus. One (1) indicator shall be for front to rear level and one (1) for side to side level. **Forward Aerial Support** The aerial ladder support shall be fabricated from steel components and be welded directly to the torque box chassis. The ladder support uprights shall be constructed from 7/8" thick steel plate. Bolt-in diagonal bracing shall be installed on the support structure in an "X" pattern to restrict to side movement. This design shall allow for a pre-determined amount of flex preventing premature failure that can be found in an		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
overly rigid structure. The support shall be located behind the rear wall of the cab. **Turntable Support Assembly** The aerial ladder turntable assembly shall be mounted at the rear of the apparatus. The turntable support assembly shall be welded to the integral torque box for efficient transfer of aerial loads to the stabilizers and shall permit storage of ground ladders in the center rear of the apparatus. The complete turntable support assembly shall be multi-pass welded to the sides of the combination chassis frame torque box. The turntable support assembly shall be a steel weldment constructed of four (4) vertical 1/2” x 5” x 5” square tubing with identical tubing welded in between the top ends of the verticals. A bearing mounting plate shall be welded to the top of the verticals and sides of the horizontals. The bearing mounting plate shall be 54” x 54” and shall have a 1-1/2” thickness. This bearing mounting plate shall be bulkheaded to a 3/4” steel plate that is welded to the bottoms of the horizontal tubing. The use of multi-pass welding shall be utilized wherever possible. A 44” rotation bearing with a 3 3/4” face drive gear shall be bolted to the top of the bearing mounting plate with thirty (30) 1” grade 8 plated bolts. The gear tooth shall be stub tooth form. **Upper Turntable** The upper turntable assembly shall attach to the rotation bearing and the base of the ladder. The turntable working platform shall be a fabricated steel structure covered with a non-skid 3/16” thick aluminum material for operator safety. The right side of the turntable shall be modified to allow full access to the body`s SideStacker hosebed (if applicable). Two (2) railings 42'' high shall be provided along the outside of the turntable deck as outlined in NFPA 1900.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
There shall be a control pedestal on the left side of the turntable. Two (2) padded Fire Research brand ManSaver safety bars shall be mounted to the turntable handrails. The bars shall lift up and inward (towards the ladder) permitting easy entrance to the ladder and control console. The turntable assembly shall provide a mounting base for the ladder and elevating cylinders. The turntable assembly shall be bolted to the turntable bearing by twenty two (22) 1” grade 8 plated bolts. The ladder pivot point shall connect to the upper turntable assembly by two (2) 2-1/2” ID spherical bearings. **Elevation Mechanism** The aerial shall utiliz e dual 6” diameter elevating cylinders and shall attach to the upper turntable assembly and the base section of the ladder by 2” ID spherical bearings. The elevation hydraulic cylinders shall incorporate cushions on the upper limit of travel. The hydraulic elevation cylinders shall also serve as a locking device to hold the aerial in the stored position for road travel. **Rotation Mechanism** The aerial shall be supplied with a hydraulically-powered rotation system. The hydraulic rotation motor shall provide continuous rotation under all rated conditions and be supplied with a spring-applied brake to prevent unintentional rotation. The high torque rotation drive shall operate through a dual reduction planetary gearbox that drives a spur gear mated with the ring gear on the rotation bearing. The rotation gearbox shall be rated at 120,000 in. lbs. **Aerial Electric Power** A hydraulic swivel shall be installed to provide hydraulic fluid transfer to the aerial ladder cylinders, electrical power to the aerial ladder, and water delivery to the pre-		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
plumbed waterway while permitting continuous 360-degree rotation. The swivel shall provide two (2) hydraulic circuits, twenty four (24) electrical circuits, and one (1) 4” passage for waterflow. The swivel shall be environmentally-sealed to prevent contamination of the hydraulic fluid. **Elevating Platform Operating Positions** The elevating platform shall have two (2) control stations as outlined in NFPA 1900 with the lower controls capable of overriding the platform controls. The operator`s lower position shall be located on the left side of the aerial turntable. The console shall be angled with an etched panel for long service life. The console shall include lighting for night operations and controls shall all be labeled for easy identification of operation. The upper control console shall be located in the front center of the platform and shall include all of the operational, aerial functions and control switches (less the Intercom controls) as in the lower console. The centered console location shall allow easy access in and out of the left and right corner gates. **Aerial Alignment Indicator** A reflective arrow mounted to the body and the turntable shall indicate when the aerial is aligned for travel bed. **Load Indication System** A lighted elevation/safe load indicator diagram shall be located on the lower right side of the base section and upper left side of the fly section for platform use to indicate safe load capacity at any angle of elevation. The safe load indicator shall be 15” x 15” in size and clearly communicate aerial capacity in any one of the following conditions: tipload, tipload with water flowing, and distributed load at full extension. The chart shall identify capacity using graphic characters to indicate each 250 lb. increment. The chart shall be equipped with lighting and warn of electrocution hazards from power lines and lightning. **Elevating Platform Water Delivery System**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A pre-piped waterway shall be supplied as outlined in NFPA 1900. The waterway shall telescope to the end of the third section to the platform water system. A waterway of 4” internal diameter shall run through the turntable and a swivel joint to connect to the tubular aerial waterway. The tubular waterway shall run under the aerial ladder. The waterway tubes shall have the following sizes: Base Section: 5” OD 2nd Section: 4-1/2” OD Fly Section: 4” OD The tubes shall be constructed of 6063T6 hard coat anodized aluminum and shall be telescopic with the aerial ladder through sealed slip joints. The slip joints shall be designed with grease zerk fittings to facilitate lubrication. A 1-1/2” drain valve shall be installed and operated from the rear of the apparatus. The water system shall be capable of flowing up to 2000 GPM at full elevation and extension. The friction loss between the tip and below the swivel shall not exceed 100 psi while flowing 1000 GPM as outlined in NFPA 1900. **Waterway Relief Valve** An automatic relief valve preset at 250 psi shall be installed in the aerial waterway to prevent over-pressurization of waterway system as outlined in NFPA 1900. The relief valve shall be mounted in the lower portion of the waterway where it enters the aerial torque box frame and dumps under the apparatus. **ISO Compliance** The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2000. The International Organization for Standardization (ISO) is a recognized world leader in establishing and maintaining stringent manufacturing standards and values. The manufacturer`s certificate of compliance		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
affirms that these principles form the basis for a quality system that unswervingly controls design, manufacture, installation, and service. The manufacturer`s quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer`s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required. If the manufacturer operates more than one manufacturing facility each facility must be ISO certified. By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements. A copy of the manufacturer`s certificate of ISO compliance for each manufacturing facility shall be provided with the bid. # AERIAL HYDRAULIC SYSTEM OPTIONS ## Aerial Hydraulic Oil Level Gauge A hydraulic oil level gauge shall be supplied for easy fluid level verification. The three color display shall indicate full oil level with a green light, acceptable oil level with a yellow light, and low oil level with a red light. The display shall be located next to breaker box. ## Aerial Hydraulic Pump The aerial hydraulic pump shall be upgraded to a variable displacement style with a drive-through provision. This feature shall provide power to an		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
additional hydraulic system from a common transmission power take-off port. The variable displacement piston pump shall be able to supply up to 30 GPM at a maximum pressure of 3000 PSI. The system shall operate between 1000 and 2850 PSI with flow controls to protect hydraulic components and incorporate a relief valve set at 3000 PSI to prevent over-pressurization. An activation switch shall be provided in the cab within easy reach of the driver. A system ”engaged” indicator light shall be provided on the activation switch. The system will allow for the aerial hydraulic pump to be activated without having to shut down the water pump or reduce engine RPM`s. Engagement shall be allowed only with the transmission in the neutral or pump gear and the parking brake engaged. **AERIAL CONTROLS** **Turntable Console** The turntable console shall be formed from 1/8" (.125) aluminum diamond plate and be mounted to a tubular steel support. The console shall be a single-level design and include a side hinged diamond plate cover to protect all controls from the elements. The console shall include lighting for night operations and controls shall all be labeled for easy identification of operation. **Aerial Control System** The aerial hydraulic system shall be equipped with a microprocessor based electric over hydraulic control system. The system shall utilize six (6) proportional control valves for aerial device movements. The electro-hydraulic valves shall permit the use of base and tip controllers and minimize hydraulic connections. The hydraulic system valve body shall be located under the ladder base step to provide as much turntable workspace as possible.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The switch modules on the console shall be CAN based for reliable operation. The system shall utilize 32-bit control module(s) rated for mobile applications. The control system shall have manual overrides in the event of a system failure. The overrides shall be located on the turntable accesible by a door on the turntable step. The manual system shall be organized to match the base controllers and is function labeled. **Aerial Ladder Control Levers** The control system shall incorporate three (3) control levers at each control console. The controls shall be arranged as outlined in NFPA 1900/1901. The first lever from the left shall be the extension control (forward for extend and back for retract). The second lever shall be for rotation (forward for clockwise and back for counter clockwise). The third handle shall control elevation (forward for down and back for up). A ring around the control console shall be provided to prevent unintentional movement. **Automatic Variable Speed Control** The aerial hydraulic system shall deliver variable rotation and elevation speeds based on platform position. The system shall allow the aerial to proportionately operate quicker, either through elevation or retraction, as the platform is brought in closer to the turntable centerline. This feature provides quicker ladder movement when not fully extended and/or elevated. The variable speed system also offers the operator more consistent platform movement speed (distance per second) regardless of platform location, equating to more predictable aerial control. The aerial control system shall include electronic ramping to provide smooth acceleration and deceleration of aerial functions during sudden movements of the operator control levers. The control system shall also monitor the end of the stroke position of both the elevation and extension cylinders to bring the aerial to a smooth and controlled stop at the end of the		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
cylinder stroke. The sensors shall be CAN based for accurate and reliable performance. **Aerial Speed Switch** The control system shall be provided with a slow speed (Creep) switch. This switch, when activated, shall reduce aerial operating speeds, allowing for pin-point platform placement. When in the creep mode, the ramping feature of the controls system shall be disabled allowing for precise aerial placement. When the creep speed switch is activated the chassis engine shall remain at idle speed. **Tethered Control** A tethered control shall be provided in the platform to allow the operator to move the aerial from anywhere in the platform. The control shall have a nylon housing to withstand shock and be IP66 rated to withstand harsh environments. The control shall have tactile buttons for full control over extension, rotation and elevation. The controller shall also have switching to select between four (4) speeds with the maximum being approximately 60% of normal aerial speed. The controller shall have LED lights to indicate the selected speed. The platform operator's console shall be fitted with a switch to disable the tethered control. The tethered control shall be stored in a recessed box integral to the platform control console. **Variable Ramping** A three (3) position switch shall be provided to select system ramping (ladder movement when initiating or ceasing movement of a control lever). The switch shall allow selection of normal (1/2 second), firm (1/4 second) or soft (3/4 second) ramping based on operator preference.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Cab / Body Protection The aerial control system shall feature programming to prevent the aerial from contacting the cab and / or body. The system shall feature multiple zones to optimize operational envelop based on a specific apparatus configuration. When approaching a protected zone the aerial shall automatically ramp down in speed to come to a soft stop. An indicator shall be provided on the control system's display when the aerial reaches a protected zone. A momentary switch shall be provided to allow the aerial operator to by-pass the cab / body protection zone. **Aerial Information System Display - Turntable** The aerial device shall be equipped with a 7" color display at the turntable console that provide critical information to the aerial operator for added safety. Information shall be conveyed to the operator using J1939 protocol through multiple mission-specific screens, each tailored for a specific fireground activity. The screens display shall include available tip load, distributed load, master stream and aerial systems data. The available tip load shall be represented in simple ”Stick-Figure” type symbols that show the allowable quantity of people at the tip based on ladder position. The screen layouts shall be uncluttered allowing the symbols to be easily read at a glance. The system shall also feature programming that calculates the allowable tip load based on elevation and extension, allowing for increased tip capacity when possible. Systems that rely on hydraulic pressure to determine load shall not be acceptable. In addition to available tip load, the display shall provide the following information: • Ladder extension (%) • Ladder inclination in degrees • Ladder rotation position • Rated distributed load • Waterway flow (if equipped with a pre-piped waterway)		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• Total waterway flow (with reset button) • Waterway pressure (if equipped with a pre-piped waterway) • Tip temperature • Ambient temperature • Hydraulic oil pressure • Hydraulic oil temperature • Hydraulic oil level • Aerial hourmeter • Rung alignment status • Cradle alignment status • Aerial PTO status • Aerial PTO engage • Breathing air status (if equipped with breathing air) • Fuel Level • Transmission temperature • Engine RPM • Coolant temperature • Engine oil pressure • Battery voltage • Pump in gear status (if equipped with a pump) • OK to pump status (if equipped with a pump) • Chassis engine start / stop • Chassis air horn switch The display shall be capable of showing system units in standard or metric values. **Display Screen** • 7” bonded Transflective LCD screen (Sunlight viewable) • 16-bit color format • 800 x 480 resolution • LED backlighted switches • Environmentally sealed housing • A minimum of ten (10) integrated tactile navigation buttons **Aerial Information System Display - Platform** The aerial device shall be equipped with a 4.3" color display at the control console in the aerial platform.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Information shall be conveyed to the operator using J1939 protocol through multiple mission-specific screens, each tailored for a specific fireground activity. The screens display shall include available tip load, distributed load, master stream and aerial systems data. The available tip load shall be represented in simple ”Stick-Figure” type symbols that show the allowable quantity of people at the tip based on ladder position. The screen layouts shall be uncluttered allowing the symbols to be easily read at a glance. The system shall also feature programming that calculates the allowable tip load based on elevation and extension, allowing for increased tip capacity when possible. Systems that rely on hydraulic pressure to determine load shall not be acceptable. In addition to available tip load, the display shall provide the following information: • Ladder extension (%) • Ladder inclination in degrees • Ladder rotation position • Rated distributed load • Waterway flow • Total waterway flow (with reset button) • Waterway pressure • Tip temperature • Rung alignment status • Cradle alignment status • Breathing air status (if equipped with breathing air) • Fuel Level • Chassis air horn switch The display shall be capable of showing system units in standard or metric values. **Display Screen** • 4.3” bonded Transflective LCD screen (Sunlight viewable) • 16-bit color format • 480 x 272 resolution • LED backlighted switches • Environmentally sealed housing		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• Eight (8) integrated tactile navigation buttons **Audible Warnings** The system shall include alarms to indicate when tip temperature is greater than 300°F, tip temp below 32°F, hydraulic oil temperature is above 190°F and when breathing air is below 20% and 5% volume (if equipped), **Visual Warnings** In addition to the audible warnings, the system shall include visual warning indicators for high tip temperature, low tip temperature, high hydraulic oil temperature and low breathing air (if equipped), **Sensors** • Ladder extension • Ladder inclination • Turntable rotation • Waterway pressure • Waterway flow • Tip temperature • Ambient temperature • Hydraulic oil pressure • Hydraulic oil temperature • Hydraulic oil level • Cradle alignment • Rung alignment • Breathing air pressure (If equipped with breathing air) **Cradle Assist Switch** The control system shall also include a momentary switch to assist in stowing the aerial. The switch, in conjunction with moving the "down" aerial control lever shall cause the aerial to rotate to center and lower into the cradle. The system shall be operational when the aerial is below 30 degrees in elevation and 30 degrees left or right of center. **Monitor Stow Switch**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The control system shall also include a switch to deploy and stow the waterway monitor (if equipped with a pre-piped waterway). **Emergency Stop Switch** An emergency stop switch shall be provided on the console that turns off the controllers and de-energizes the PTO in the event the aerial must be stopped immediately. The system shall include both visual and audible indicators that the switch has been activated. **Durability** The components shall be thoroughly tested and have a proven reliability in severe environments to ensure long life on the fireground. The system shall be capable of operating in a temperature range of -40°C through +85°C. **Diagnostics** The system shall feature diagnostic capabilities that includes an I/O status screen separated by component. **Platform Pivot Control** The platform leveling system shall be designed to tilt the aerial platform up or down from within the cab. The system shall include a platform level assist feature. The system shall include a momentary switch accessible by the driver to allow pivoting of the platform up or down. The switch shall have an integral light with two (2) colors. Green illumination shall indicate the platform is in alignment with the ladder sections and red shall indicate the platform is out of alignment. A second momentary switch shall be provided that activates the system to automatically align the platform with the aerial ladder sections. **MONITORS** **Monitor Finish**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The aerial monitor(s) shall be ordered from the OEM manufacturer painted red. **Monitor Control** An Akron Brass Style 6047 2.4 GHz wireless remote control system shall be provided for the Akron monitor on the aerial. The controller shall be capable of operating one (1) or two (2) monitors up to 300 feet away and maneuver all operational positions of the monitor and nozzle plus stow, deploy and oscillation. The system shall include the handheld wireless controller, mounting bracket, USB charger and two (2) spare 26650 lithium-ion batteries. **Electric Monitor** The aerial platform shall come equipped with an Akron style 3486 StreamMaster II electrically controlled monitor with integrated shut-off valve (AVM). The platform waterway monitor shall have a horizontal sweep of 180 degrees (90 degrees either side of center) and a vertical sweep of 90 degrees (45 degrees above and below horizontal). The monitor relay box shall include electronic control system that is attached to the inlet base of the monitor and be totally encapsulated to prevent moisture intrusion. The monitor shall have fully enclosed motors and gears with built in manual override capability and quick attach handles. The monitor shall be able to operate in the horizontal and vertical axis simultaneously. Control switches for horizontal movement, vertical movement and pattern selection shall be located at the base of the platform at the turntable console. The electric monitor shall be capable of discharging up to 2000 gpm at 80 psi nozzle pressure. The monitor shall be installed on the center front of the platform.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Monitor Tip Controls In addition to the controls at the operator console, electric monitor directional and stream controls shall be installed in close proximity to the monitor on the ladder. **Shut-Off Valve** The monitor shall have an integrated ball valve to control flow of water to the monitor. The valve shall have a manual gear actuator and provisions for up to two (2) 2.5" gated discharges. **Monitor Nozzle** The monitor shall have an Akron Style 1578 electrically controlled SabreMaster solid bore / fog flow nozzle. The flow rating shall be up to 1250 gpm at 80 psi. The nozzle shall have a built-in stream shaper. **WATERWAY OPTIONS** **Platform Preconnect** One (1) 2-1/2” discharge with an Akron 2-1/2” Pyrolite™ valve shall be located at the left rear of platform. **Waterway Inlet** One (1) 4” inlet shall be provided at the rear of the apparatus and shall be connected to the vertical pedestal waterway piping to supply water to the aerial waterway from an outside source. All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel piping to help prevent corrosion. The threads shall be NST. A long handle chrome plated 4” NST cap shall be installed on the inlet. **Reducing Elbow for Aerial Discharge** One (1) 2-1/2” FNST x 2-1/2” MNST 45 degree chrome elbow shall be provided. One (1) 2-1/2” FNST x 1-1/2” MNST reducer shall be provided on the elbow. The elbow shall include a 1-1/2” chrome cap and chain. This		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
shall allow the use of 2-1/2” or 1-1/2” hose from the platform / ladder tip outlet. **Waterway Pressure Gauge** Innovative Controls TC Series 2.5" (63MM) LED waterway inlet pressure gauge (0-400) shall be provided. Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauge shall be fully-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. Each gauge shall exceed (NFPA 1900 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments. The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube. The gauges shall display a range specified with enhanced black markings on a white dial. Color: Blue. **Dual Read Pressure Gauge** Waterway inlet pressure gauge shall be dual read (KPA/PSI). **AERIAL WARNING LIGHTS** **LED Outrigger Lights (4)**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Four (4) Truck-Lite model 91 LED outrigger warning lights with red lenses shall be provided. The lights shall be surface mounted on the outrigger covers. **Warning Lights on Front of Platform** Four (4) Federal Signal FireRay model LED light heads RED with RED lenses shall be provided. The flashing lights shall be surface mounted low across the aerial platform and be wired to the upper level warning light package. **Warning Lights on Sides of Platform** The aerial platform shall be supplied with two (2) Federal Signal FireRay model FR6 LED warning lights. The lights shall be RED with RED lenses. The LED lights shall activate with aerial master switch. The lights shall be located on the side of the ground pad brackets. **AERIAL LIGHTING** **Quartz Light** Fire Research Spectra model SPA540-K20-CLP37-ON-SW side mount pull up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. An internal brake shall slow the extension pole during lowering. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant hand rail. The pole mounting brackets shall have a 3 1/2” offset. Wiring shall extend from the pole bottom with a 37” retractile cord. The lamphead shall have sixty (60) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 120 volts AC, draw 2 amps, and generate 20,000 lumens of light. The		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead shall be no more than 5 7/8" high by 14" wide by 3 1/2" deep and have a heat resistant handle. The lamphead and mounting arm shall be powder coated. The LED scene light shall be for fire service use. Fire Research Spectra -ON option switch shall be installed on the Focus lamp head. The weatherproof on-off toggle switch shall be mounted in a switchbox below the lamp head. The switchbox shall be powder coated white. Fire Research Spectra -SW option raised pole hazard light switch for a 540 pole shall be installed. The magnetic switch shall be in a cylindrical housing clamped on the outer pole. A magnet shall be mounted in the extension pole. The switch contacts shall close when the pole is raised. The light shall be located left rear of platform, right rear of platform. **Ladder Climbing Lights** A Luma-Bar Pathfinder LED lighting system shall be provided to illuminate the climbing area inside each ladder section. The strip type lights shall be located above ladder rung level and directed toward the centerline of the ladder to reduce glare. The lights shall be mounted to a 1.25" x .5" x .125" extruded aluminum channel and wired to not be an obstruction during climbing. The lights shall be controlled with the ladder lights switch at the operator`s control console. The LED lights shall be Blue. **120V LED Flood Light** A Whelen Pioneer Plus series 120V LED light fixture model PFP1AC dual panel light head shall be provided on a PBA106 bail mount. The rectangular extruded light fixture with die cast end caps shall measure 8-3/16" wide by 4-1/4" high by 3" deep and have a white powder coat finish. The light fixture shall have a single panel (4)		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
clusters of LED lamps with molded vacuum metalized reflector that draws .625 amps and produce 5,500 usable lumens. Location(s): left rear of platform facing down. A weather-resistant switch shall be provided on the platform control panel to control the light when the aerial power circuit is activated. **LED Flood Light** Fire Research Spectra LED Scene Light model SPA260-Q15 surface mount light shall be installed. The light shall be mounted with four (4) screws to a flat surface. It shall be no more than 5 7/8" high by 14 1/2" wide and have a profile of less than 1 7/8" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the lamphead. The lamphead shall have sixty (60) ultra-bright white LEDs, 56 for flood light and 4 to provide a spot light beam pattern. It shall operate at 12 or 24 volts DC. The light shall draw 13 amps at 12 volts (6.5 at 24 volts) and generate 15,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead shall be powder coated white. The LED scene light shall be for fire service use. A switch to control the light shall be provided on the platform console. The light shall be located center front of platform. **Base Flood/Spot Light** A pair of 12V FireTech model FT-WL3500-FT-W LED flood/spot lights shall be provided on the base section of the aerial device. Includes hardwired switch at turntable console. **MISC AERIAL ELECTRICAL**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Aerial Tip Receptacle A 110 volt twist lock 15 amp receptacle outlet shall be installed at the tip of the aerial device and wired into an apparatus breaker box with a 30 amp breaker. The breaker shall be fitted with a GFI protection feature. The receptacle box shall be fitted with a weather resistant cover. # BREATHING AIR **Aerial Breathing Air System** The aerial device shall be supplied with a breathing air system as outlined in NFPA 1900 19.7.7 and section 24.5. The air system shall hold a total of 444 cubic feet of air carried in single DOT 444 cubic foot cylinder rated at 4500 psi. The air tank shall be painted yellow and marked with a label that reads ”High Pressure 4500 psi Breathing Air”. The tank shall be mounted in accordance with NFPA 1900 24.5.7 and include a guard to protect the valve on the cylinder end. All components of the piping system shall have a 3 to 1 safety margin. There shall be a high pressure regulator supplied at the base of the aerial to provide an outlet working pressure of approximately 100 psi. All valves, fittings and hoses shall be constructed of corrosion-resistant material. A pressure relief valve set at 10% above the desired operating pressure shall be supplied to relieve the air lines in the event of a pressure regulator failure. Two (2) 1/4” NPT outlets shall be provided in the platform for dealer/customer installed quick-connects. An air mask box shall be provided to store breathing air masks at the tip as outlined in NFPA 1900 19.7.7.4. A low air breathing alarm shall be provided as outlined in NFPA 1900 section 19.7.7.5. The low air warning system shall provide an audible and visual warning when the air volume is at or below 20 percent. **Ground Fill Hose**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A 50 ft. length of air hose shall be provided to permit the capability of filling the breathing air tank(s) on the aerial device without having to remove them. The hose shall be rated at 7000 psi and comply with NFPA 1900 requirements for Fire Apparatus and CGA G7.1-1 Grade E Breathing Air Standards. The hose shall have a quick-connect fitting on each end. # AERIAL EQUIPMENT ## Axe Bracket An axe bracket shall be provided on the aerial ladder. The bracket shall be Zico model# H-AB blade guard and PAC TRAC model# 1004 clamp for the handle. The bracket shall be designed to hold a 6 lb. axe and include a pick cover. Location: right side inside of platform. ## Hose Box A hinged covered hose box shall be mounted at the platform. The box shall have sufficient capacity to hold 50` of 2-1/2” double jacket coupled fire hose and pistol type automatic nozzle. The box shall be located left side of platform. ## Rope Roller A dual rope roller shall be provided to aid in rope rescue operations. The rope roller shall consist of a welded aluminum frame, two aluminum pulleys and a lifting handle. The assembly shall be portable allowing it to be placed in various locations along the ladder. The assembly shall be held in place between rungs through the use of two (2) 1/2” locking pins. The pulleys shall be rated for 250 lbs. each. ## Safety Belt Anchors Heavy duty safety belt anchor points shall be provided in the platform. The anchors shall be NFPA 1900 complaint and remain attached with 1800 lbs force perpendicular to the mounting surface. This is		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
equivalent to 300# with a six foot long maximum shock lanyard. (300lbs x 2:1 SF x 3g dynamic load) A total of seven (7) anchors shall be provided. The anchors shall be located as follows: • Four (4) on the interior rear wall of the platform • One (1) on the interior front wall of the platform • Two (2) on the sides of the platform, located one (1) each side **Tie Off Eyes** Tie off eye on outrigger (4). Locate on pivot side of outer jack tube. Fabricated from .5" steel. Inside edges of the slots are to be rounded to help prevent damage to equipment. Rated at 9000lbs. each. For use with criss cross underslung jacks only. **Stokes Basket Brackets** Brackets shall be provided to mount a stokes basket to the aerial base section while not in use. Brackets shall hold a Ferno Model 71 stokes. The stokes basket shall mount on the base section on the left side towards front. Stokes not included. **Stokes Basket Receiver** The platform shall have the capacity to receive a stokes basket at tip for rescue operations. Two welded removable structures shall be provided which shall fasten to the basket utilizing T-handle stainless steel locking pins. The locking pins shall be attached by stainless steel cables to the stokes frame assembly. Each welded assembly shall be supplied with a carabineer hook and Velcro straps to secure the stokes basket to the receiver. The stokes receivers shall be able to be mounted in two (2) locations: • Left side of platform with basket positioned front to rear		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• Right side of platform with basket positioned front to rear **Pike Pole Mount** There shall be (2) two PAC TRAC positive locking brackets for one (1) 6` pike pole. Location: left side fly section. # AERIAL LADDER BRACKETS **Parapet Roof Ladder Bracket** A bracket shall be provided on the aerial platform for attaching a ground ladder allowing roof access over a parapet. **Roof Ladder Bracket** A lift-out style roof ladder mounting bracket shall be installed on the outside of the ladder base section. The bracket shall be designed to hold a PRL/DRL-16 on right side of base section, 875A/DR 16 on right side of base section. # SIGN PLATES **Aerial Sign Plate** Two (2) 22” x 144” x 1/8” (0.125”) thick smooth aluminum plates shall be provided. The plates shall have 1” lips top and bottom for rigidity. Each sign plate shall be bolted on either side of the base section, approximately at the midpoint. The plates shall be provided to display the department`s name or other information. The plates shall be painted Job Color as specified by the customer. # AERIAL TESTING **Third-Party Flow Test** A flow test shall be conducted to determine that the water system is capable of flowing 1,000 gpm at 100 psi		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
nozzle pressure with the aerial device at full extension and elevation. When the aerial apparatus is equipped with a fire pump, the test shall be conducted using the onboard pump. Intake pressure for the onboard pump shall not exceed 20 psi. In addition to the flow test, a hydrostatic test shall be done on the waterway system. The permanent water system, piping, and monitor shall be hydrostatically tested at the maximum operating pressure required to flow 1,000 gpm at 100 psi nozzle pressure at maximum elevation and extension. These results shall be certified by an independent, third-party testing organization, per NFPA 16.13.1 through 16.13.1.3. **Aerial Certification** The aerial device shall be tested in compliance with the edition of NFPA documented elsewhere in these specifications. Upon satisfactory completion of all inspections and tests, an independent third-party inspection firm shall submit a certificate indicating that all specified standards have been met. # HAND TOOLS **Pick Head Axe with Fiberglass Handle** A 6 lb. steel pick head axe with fiberglass handle shall be supplied. **NY Hook [Qty: 2]** 10 Ft. Firehooks Unlimited New York Roof Hook (RH-10) with Fiberglass pole and chisel end. **NY Hook [Qty: 2]** 8 Ft. Firehooks Unlimited New York Roof Hook (RH-8) with Fiberglass pole and chisel end.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
NY Hook [Qty: 2] 6 Ft. Firehooks Unlimited New York Roof Hook (RH-6) with Fiberglass pole and chisel end. **NY Hook** 6 Ft. Firehooks Unlimited New York Roof Hook (RH-6) with Steel pole and chisel end. **GROUND LADDERS** **Duo-Safety Folding Ladder** A Duo-Safety 585-A, 10` folding attic ladder shall be provided.  **DUO-SAFETY ROOF LADDER**  A Duo-Safety 775-A, 14` roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other. **Duo-Safety Roof Ladder** A Duo-Safety 875-A, 16` roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with prong feet (steel spikes) on the other.  **DUO-SAFETY EXTENSION LADDER**  A Duo-Safety 900-A, 24` 2-section extension ladder shall be provided. **Duo-Safety 3 Section Extension Ladder** A Duo-Safety model 1225-A, 35` three-section extension ladder without poles shall be supplied. **Duo-Safety Roof Ladder**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A Duo-Safety 875-DR, 16` roof ladder shall be provided. Folding steel roof hooks shall be attached to both ends of the ladder with prong feet. **Little Giant Model 17 Ladder** **A-Frame Ladder** One (1) Wing Enterprises Little Giant model 17 Defender aluminum A-frame ladder shall be supplied. The ladder shall be equipped with a heavy gauge steel locking device and ladder shoes for extra safety. It shall be capable of being used either as a 9` to 15` variable-length straight ladder or as an adjustable step ladder with the ability to be erected on stairs or other offset horizontal surfaces. **MISC LOOSE EQUIPMENT** **Wheel Chocks** Two (2) Zico model SAC-44-E folding wheel chocks for up to 44” diameter tires shall be supplied and located per the customer. The SQCH-44-H horizontal holders and pair of chocks require a minimum storage area of 6” high, 10-1/2” wide and 22-3/8” deep. **DOT Required Drive Away Kit** Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement. **Stokes Ferno Washington Model 71** A Ferno Washington Model # 71 orange stokes shall be supplied. The stokes basket shall include four orange nylon tie-down straps approximately four feet in length. The straps shall have a loop on one end with male/female seatbelt type buckles at the other end. **FireCom Wireless Headset [Qty: 2]** One (1) FireCom model UHW505 under helmet wireless radio transmit headset shall be provided shipped loose.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The headset features shall include: • IP-67 Rating - submersible; impervious to dust and water • Microphones protected by a layer of waterproof material for outdoor use • 2-stage microphone cover eliminates wind noise • Flexible microphone boom • Enhanced durability and comfort; designed to fit any head size • Integrated sound dosimeter measures, monitors and limits noise exposure at all inputs to ensure compliance with hearing protection standards • Sound suppressor reduces loud noise while enhancing other sounds • Stereo Listen-Through microphones allow face-to-face conversation and situational awareness without removing hearing protection • 20dB passive noise reduction rating (NRR) • 24-hour rechargeable lithium-ion battery • User-replaceable battery • Energy-saver sleep mode: one year of shelf life without losing charge • Auto-on powers on the headset on charging cable disconnect • Power-on battery capacity LED indicator • Audible and visual 2-stage low battery warning • 110/220V DC battery charger included • Heavy-duty 12V DC charging cable included **FireCom Wireless Headset [Qty: 4]** One (1) FireCom model UHW503 under helmet wireless intercom only headset shall be provided shipped loose. The headset features shall include: • IP-67 Rating - submersible; impervious to dust and water • Microphones protected by a layer of waterproof material for outdoor use • 2-stage microphone cover eliminates wind noise • Flexible microphone boom • Enhanced durability and comfort; designed to fit any head size		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
• Integrated sound dosimeter measures, monitors and limits noise exposure at all inputs to ensure compliance with hearing protection standards • Sound suppressor reduces loud noise while enhancing other sounds • Stereo Listen-Through microphones allow face-to-face conversation and situational awareness without removing hearing protection • 20dB passive noise reduction rating (NRR) • 24-hour rechargeable lithium-ion battery • User-replaceable battery • Energy-saver sleep mode: one year of shelf life without losing charge • Auto-on powers on the headset on charging cable disconnect • Power-on battery capacity LED indicator • Audible and visual 2-stage low battery warning • 110/220V DC battery charger included • Heavy-duty 12V DC charging cable included # EXTERIOR PAINT **Painted Pump/Pre-Connect Module(s)** The apparatus pump/pre-connect module(s) shall be painted job color. The paint process shall match what is applied to the body. **Paint Break** A special paint break shall be provided as specified by the purchaser. **Paint Body Large** The apparatus body shall be painted a (non-metallic) color. **Paint Custom Cab** The apparatus cab shall be painted a (non-metallic) color as specified.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Paint Cab Two-Tone Color The upper section of the cab shall be painted a (non-metallic) color as specified. **Aerial Paint** The lift cylinders, extension cylinders and upper turntable steelwork (less turntable) shall be painted to match the primary job color. **Paint Process/Manufacturer** The specified OEM supplied components shall be painted with PPG Industries paint. All applicable metal surfaces shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the surfaces that require a critically aesthetic finish and sanded smooth. The applicable surfaces shall then be coated with a high quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the surfaces to a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils. The applicable surfaces shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.0 mils with a maximum of 4.0 mills, followed by a clear top coat with a minimum of 2.0 mils and a maximum of 4.0 mils. All applicable components shall then be baked to speed the curing process of the coatings.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
INTERIOR PAINT **Cab Interior Paint** The interior of the cab shall be painted multi-tone gray finish. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system. **LETTERING** **Scotchlite Letter [Qty: 60]** Scotchlite letters upto 6" tall shall be applied. The exact size, color and location of the letters shall be as specified by the customer. **Scotchlite Letter [Qty: 40]** Scotchlite letters upto 12" tall shall be applied. The exact size, color and location of the letters shall be as specified by the customer. **Lettering Shade and/or Outline [Qty: 100]** Existing letters shall be shaded and/or outlined as specified by the customer to provide a contrast. **STRIPING** **Reflective Stripe in Rubrail** The reflective stripe in the body rubrail shall be white. **CAB AND BODY STRIPE** A single Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body . The stripe shall have a hockey style, Z or S style or any other customer specific design style.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer. **CAB AND BODY STRIPE [Qty: 2]** An additional Scotchlite stripe, up to 3 inches in width shall be installed on the cab and body. The stripe shall be NFPA compliant and the design, size, color and location shall be as specified by the customer. **Pin Stripe** A 1/4” tape pin stripe, color as specified by the customer, shall be applied above and below the Scotchlite stripe. **Scotchlite Cab Stripe** Scotchlite cab stripe shall be 3/4” in width. Stripe shall be centrally located and shall contour with the cab, following the paint break. Color of the stripe shall be as specified by the customer. **Rear Body Reflective Striping** Chevron style Reflexite V98 striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable. **Reflective Stripes on Stabilizers** aerial ladder stabilizers which protrude beyond the side of the body shall be striped with alternating color Reflexite V98 film. The stripes shall run at a 45 degree angle sloping down and away from the center, forming an "A" shape when viewed from the front or rear of the unit. The reflective material shall meet NFPA 1900 requirements.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Stripe colors to be Red/Fluorescent Yellow Green. **Designated Standing / Walking Area Indication** 1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with NFPA 1900/1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement. **GRAPHICS** **OEM Logo** Logo OEM (PR) on aerial lift cylinder. Logo to be sign gold material approx 14" long located midway along outward surface of cylinder. **Graphics Drawing** A graphics drawing shall be provided for the apparatus. The drawing shall include striping, lettering and logos meeting NFPA guidelines. The drawing shall be presented for review and approval by the end user prior to application of the graphics. **WARRANTY / STANDARD & EXTENDED** **General 1 Year Warranty** Purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0001. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Aerial Ladder Structural Warranty** Purchaser shall receive an Aerial Ladder Structure Twenty (20) Years or 100,000 Miles limited		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
warranty in accordance with, and subject to, warranty certificate RFW0403. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Body Structural (Aluminum) Warranty** Purchaser shall receive a Body Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0502. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Plumbing and Piping (Stainless Steel) Warranty** Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Meritor Rear Axle Warranty** A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive. **Front Axle Warranty** A 5-year/unlimited miles, 5-year parts and 5-year labor front non-drive steer axle warranty shall be provided by Dana Corporation. **Custom Chassis Warranty** Purchaser shall receive a Custom Chassis One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0101. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
Electrical Warranty Purchaser shall receive an Electrical One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Cab Structural Warranty** Purchaser shall receive a Cab Structure Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Paint and Finish Warranty** Purchaser shall receive a Paint and Finish Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Frame Rail Warranty** Purchaser shall receive a Frame Rail Lifetime (50) Years or 250,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0305. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request **Emissions Systems Warranty** Purchaser shall receive a Regulated Emissions Systems Ten (10) Years or 450,000 Miles or 22,000 Engine Hours limited warranty in accordance with, and subject to, warranty certificate RFW0144. The warranty certificate is incorporated by reference into this		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
proposal, and included with this proposal or available upon request **Emissions Systems Warranty** Purchaser shall receive a Regulated Emissions Two (2) Years or 24,000 Miles limited tire warranty in accordance with, and subject to, warranty certificate RFW0145. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **Emissions Systems Warranty** Purchaser shall receive a Regulated Emissions Five (5) Years or 100,000 Miles limited AC system leak warranty in accordance with, and subject to, warranty certificate RFW0146. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request. **SUPPORT, DELIVERY, INSPECTIONS AND MANUALS** **Training** The manufacturer shall provide three (3) consecutive days of training covering vehicle maintenance and operational familiarization. This training shall be provided by a full time, manufacturer employee trainer who specializes in aerial training. **Pump Panel Approval Drawing** A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on an purchased unit prior to the construction process. **Approval Drawings**		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views. Vehicles requiring pump controls shall include a general arrangement view of the pump operator`s position, scaled the same as the elevation views. **Approval Drawings - Dash Panel Layout** A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on an purchased unit prior to the construction process. **Electronic Manuals** Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information: • Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems. • Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems. • Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections. • Instructions regarding the frequency and procedure for recommended maintenance. • Maintenance instructions for the repair and replacement of installed components. • Parts listing with descriptions and illustrations for identification. • Warranty descriptions and coverage. The electronic document shall incorporate a navigation page with electronic links to the operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each		

SPECIFICATIONS	COMPLIANCE Yes/No	COMMENTS
copy shall include a table of contents with links to the specified documents or illustrations. The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like. A find feature shall be included to allow for searches by text or by part number. These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer`s location. NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included. **Fire Apparatus Safety Guide** Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the OEM`s fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.		