	BIDDER COMPLIES	
	YES	NO

BUTTS COUNTY FIRE RESCUE

TOP MOUNT RESCUE PUMPER SPECIFICATIONS

Intent of Specifications

It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Fire Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment and appliances with which the successful bidder must conform.

The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.

The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, number 1901, 2016 edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.

The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. No exception.

Each bidder shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are in a position to render prompt and proper service and to furnish replacement parts for the apparatus.

Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. All bid proposal specifications must be in the same sequence as the advertised specification for ease of comparison. 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, or who photo copies and submits these specifications as their own construction details will be considered non-responsive and shall render their proposal ineligible for award. No exception.

Bids will be addressed and submitted in accordance with the instructions provided on the last page of this document. The words "Fire Apparatus Proposal", the date, and bid opening time shall be stated on the front of the bid envelope.

It shall be the responsibility of the bidder to assure that their proposal arrives at the location and time indicated. Late proposals, telegrams, facsimile, or telephone bids will not be considered. No exception. **SEE FINAL PAGE OF THIS DOCUMENT FOR BID REQUIREMENTS.**

All bidders are required to detail the payment terms for apparatus on the bidder's proposal page. Any required prepayments or progress payments must be explained in detail.

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 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.

Bid Bond

A bid security in the form of a Bid Bond, cashier's check, or certified check made payable to the Purchaser in the amount of ten percent (10%) of the total bid shall be required. This shall serve as a guarantee which may be forfeited and retained by the Purchaser in lieu of its other legal remedies if a successful bidder's proposal is accepted by the Purchaser and the bidder shall fail to execute and return to the Purchaser the required contract and bonds within ten (10) days after delivery. If a Bid Bond is provided, it shall be issued by a bonding company licensed to bond in this State.

Certificate of Insurance

Each bidder shall furnish, with their proposal, a Certificate of Product Liability Insurance for a minimum of twenty-seven (27) million dollars. Failure to provide this documentation shall render the proposal non-responsive and the bid shall be rejected. This certificate shall be from the prime builder only. Certificates submitted from various sub-contractors in order to total the

twenty-seven million dollar minimum will not be acceptable as meeting the requirements of this section.

The Certificate must be made out to the Purchaser and must be original. Submission of a non-original Certificate or a Certificate provided that is not made out to the Purchaser will not meet the requirements of this section.

Delivery & $ 100.00 per Day Penalty Clause

The bidder shall state the time required for delivery of the completed unit on the proposal page, in calendar days from the date of the order. Delivery is important to Butts County, therefore the bidder agrees to a penalty clause of $ 100.00 per day for each day delivery exceeds the specified delivery time. NO EXCEPTIONS. The completed unit shall be delivered to the purchaser with full instructions provided to Fire Department personnel on operation, care and maintenance of apparatus at the purchaser's location.

Exceptions

The following apparatus specifications are considered minimum design and construction standards against which the apparatus will be inspected. It is the intent to receive proposals on equipment/apparatus meeting the attached detailed specifications in their entirety. Any proposals being submitted, without "Full Compliance" with these specifications shall so state on the bid proposal page, followed by a detailed "Letter of Exceptions" listing the areas of non-compliance. The reference must include page number, paragraph, and the exact nature of the exception.

Failure to follow this format, provided for the convenience of the Purchaser, will render the vendor's proposal non-responsive and ineligible for award of contract.

The Purchaser may add the statement "No Exception" to a component or design feature in these specifications. In the interest of fleet conformity or specific performance requirements, the Purchaser will not permit exceptions taken to these item(s). The Purchaser reserves the right to reject any or all bid proposals and purchase the equipment it deems most suitable to its needs. The Purchaser does not, in any way, obligate itself to accept the lowest or any bid. Any bidder taking total exception to the complete specification or a major element will result in immediate rejection of the proposal.

Service Requirements

Each bidder shall supply, with their proposal, detailed information on the bidder's ability to perform routine and emergency service on the apparatus after delivery. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the bidder is able to provide. Bidder shall state the number of miles from the Purchaser's facility to the nearest fully staffed repair facility operated by the bidder. It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified. Service capabilities will be one of the criteria for award of this contract.

Final Inspection of the Completed Apparatus

A final inspection of the completed apparatus will be held at the manufacturing facility of the successful bidder. All travel, hotel and food for two (2) representatives of Butts County will be paid by the successful bidder. If the manufacturing facility is farther that 350 miles from Jackson, Georgia, round trip commercial air fare from Atlanta, Georgia will be supplied.

Hose Bed Capacity

Hosebed hoseload allowance on the apparatus shall be 1200 lbs.

Overall Height Restriction

The apparatus shall have no overall height restrictions.

Overall Length Restriction

The unit has no overall length restrictions.

NFPA Compliance

The supplied components of the apparatus shall be compliant with NFPA 1901, 2016 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.

Freightliner Commercial Chassis: 2017 Model Year

The commercial chassis shall be a Freightliner Business Class M2 106 MD two (2) door and shall be supplied with the following equipment:

GVW Rating

The gross vehicle weight rating shall be 38,000 lbs. with an overall wheel base of 211".

Frame

The chassis frame rails shall be channel type, 10-15/16" x 3-1/2" x 11/32" steel. The frame shall have a 47" rear frame overhang. The frame rails shall be clear with no protrusions outboard of the rail from the back of the cab to the rear suspension.

Front Axle

The front axle shall be set back with 12,000 lbs. capacity.

	BIDDER COMPLIES	
	YES	NO

Front Suspension

The front suspension shall be taper leaf with a 12,000 lb. capacity and front shock absorbers.

Front Tires

Front tires shall be 11R22.5 tubeless type 14 ply radial tires.

Black hard rubber mudflaps shall be provided behind the front tires.

Rear Axle

The rear axle shall be a RS-26-161 R-series quiet ride fire/emergency service single rear, capacity 26,000 lbs. 4.89 rear axle ratio.

Rear Suspension

26,000 lb. flat leaf spring rear suspension with helper, with radius rod for fire/emergency service.

Rear Tires

Rear tires shall be 12R22.5 tubeless type 16 ply radial tires.

Brake System

The vehicle shall be equipped with a WABCO 4S/4M ABS brake system without traction control. Reinforced nylon, fabric braid and wire braid chassis air lines. BW AD-9 brake line air dryer with heater. Air dryer frame mounted.

Cooling System

950 square inch aluminum radiator. Antifreeze to -34F, Ethylene Glycol pre-charged SCA heavy duty coolant. Gates blue stripe coolant hoses or equivalent. Constant tension hose clamps for coolant hoses. Auxiliary engine cooling using water from the fire pump. Lower radiator guard.

Exhaust System

RH outboard under step mounted horizontal after treatment system assembly with RH horizontal tailpipe exiting forward of rear tires. Engine after treatment device, automatic over the road active regeneration and dash mounted single regeneration request/inhibit switch.

	BIDDER COMPLIES	
	YES	NO

Fuel Tank

A fifty (50) gallon rectangular aluminum fuel tank shall be mounted at the driver side. Fuel lines shall be reinforced nylon fuel hose. 6 gallon diesel exhaust fluid tank. Alliance fuel filter/water separator. Equiflo inboard fuel system. High temperature reinforced nylon fuel line. Fuel cooler.

Transmission

An Allison EVS3000 automatic 5 speed transmission shall be provided. The push-button electronic shift control shall be located within easy reach of the driver and shall be indirectly lit for after-dark operation. A label shall be provided within easy view of the driver to indicate the chassis transmission shift selector position to be used for pumping.

A transmission water-to-oil cooler shall be provided in the radiator end tank.
A transmission fluid check and fill with electronic oil level check.

A five (5) year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.

Battery System

(2) Alliance model 1131, group 31 12 volt maintenance free 1900 CCA threaded stud batteries. Standard battery jumpers. Single battery box frame mounted LH side under cab. Wire ground return for battery cables with additional frame ground return.

Ember Separator

Side of hood air intake with NFPA compliant ember screen and fire retardant Donaldson air cleaner.

Fire Apparatus/Rescue Chassis Prep

The following items shall be installed on the commercial chassis in preparation for fire apparatus/rescue application:

• Exhaust Extension - The chassis exhaust pipe shall be extended to the front of the right rear wheels.

• Fast Idle System - A fast idle system shall be provided and controlled by a cab or pump panel mounted switch. The system shall increase engine idle speed to a preset RPM for increased alternator output.

• Master Light Switch - The master light switch shall consist of one (1) illuminated rocker switch wired through a solenoid to accessory switches to allow pre-selected switches to be turned on or off at one time.

• Battery Master Disconnect - A heavy duty on/off single battery master disconnect switch shall be mounted in the cab within easy reach of the driver.

• Auxiliary Engine Cooler - As required for pumping applications, an engine cooler shall be installed. The engine cooler shall be required to lower engine water temperature during prolonged pumping operations and shall be controlled at the pump operator`s position.

Freightliner Auxiliary Engine Cooler

An auxiliary engine cooler shall be provided by the chassis OEM to lower the engine coolant temperatures during prolonged pumping operations.

This auxiliary engine cooler shall be installed in-line with the engine coolant system in such a manner as to allow cool pump water to circulate around engine coolant, thus forming a true heat exchange action.

The auxiliary cooler inlet and outlet shall be continuous and shall prevent intermixing of engine coolant and pump water.

The auxiliary cooler shall be controlled at the pump operator`s panel.

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 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 treadplate material.

Lid, Bumper Hose Tray

The center bumper tray shall have a diamond plate lid. The lid shall be hinged and shall be secured in the closed position by a latch and held open with a pneumatic shock.

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 16" deep (15" 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.

Rear Underbody Support Frame

The body shall be supported at the rear by a steel frame extension bolted to the chassis frame rails. The frame rails and frame extension shall be isolated from the aluminum body extrusions by 5/16” x 2” fiber reinforced rubber.

The frame extension shall be built with (2) 2.5” sq. x .25 wall thickness x full width cross rails welded to (2) 2.5” sq. x .25 wall thickness side rails. The frame extension assembly will be welded to steel weldments, which are secured to the chassis frame with grade 8 5/8” bolts.

The frame extension shall not interfere with N.F.P.A. minimum requirements for angle of departure.

Rims - Painted Steel

The chassis rims shall be Accuride 22.5" x 8.25" 10 hub piloted 2-hand steel disc wheels. The rims shall be painted job color.

Phoenix Wheel Covers

A set of bright finish Phoenix wheel covers shall be installed on the apparatus.

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels Air Guard 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.

Air Inlet

A 1/4” male plug air hose inlet shall be connected to the air reservoir tank. A 1/4” inline check valve will be installed in the line. Air hose connection will provide the capability of filling the air brake system with air from an outside source. Location: driver's door step area.

Air Horns

Dual Stuttertone Hood Mounted Air Horns with Driver and Officer Foot Switches to be Supplied and Installed by Freightliner.

Vehicle Speed

Chassis speed shall be electronic limited and not to exceed a maximum of 68 MPH. Note: Speed rating may be lower based on OEM tire ratings/top speed limitations provided on chassis.

Engine Break

Freightliner engine shall include an exhaust brake.

Cummins Engine

The chassis shall be equipped with a Cummins ISL series six-cylinder, EPA compliant, electronic engine. The engine shall be 330 HP @ 2000 RPM (2200 RPM Governed) with 1000 lb/ft @ 1400 RPM.

Alternator

There shall be a 320 amp alternator installed on the Freightliner chassis.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.

Front Tow Hooks

Two (2) heavy duty painted front tow hooks shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the apparatus without damage. They shall be mounted in the downward position.

Chassis Trim Package

A diamond plate trim package shall be provided for a Freightliner two (2) door cab. The trim package shall not require that the OEM supplied steps be removed for installation.

All stepping surfaces on the trim package shall be in accordance with NFPA by including a multi-directional aggressive gripping surface incorporated into the aluminum diamond plate. This surface shall extend vertically from the diamond plate a minimum of a 1/8" (0.125") and shall be 1" in diameter in design with a maximum of 4" on center. **(NO EXCEPTIONS)**

The driver and officer side trim shall include an upper and lower full width step. The trim package shall include fuel and DEF fill access and a mounting surface for the battery charger receptacle and air inlet.

	BIDDER COMPLIES	
	YES	NO

Battery Location

The batteries shall be located under left hand side of cab.

Logo Package

The apparatus shall have manufacturer logos provided on the cab and body as applicable.

Cab Door Reflective Material

Reflective Red/Lemon Yellow material striping shall be supplied on each of the cab doors. The stripes shall be be angled from the lower outer corner to the upper inside corner, forming an "A" shape when viewed from the rear. The reflective material shall be at least 96 square inches to meet NFPA 1901 requirements.

Label ``Diesel Fuel Only``

Located above each fuel filler housing shall be a metallic label that designates ”Diesel Fuel Only” requirements. It shall be black with white or equivalent contrasting letters a minimum of 1/2” high.

Rear Cab Overlay

The exterior rear of the cab shall have a diamond plate overlay. The overlay shall be provided to protect the rear painted surface of the cab when personnel are in or on the top mount walkway area.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of two (2) personnel shall be provided.

Cab Seating

There shall be seating provided in the cab for two (2) people.

The seating shall be one (1) 911 Universal brand high back air suspended driver seat and one (1) 911 Universal brand air suspended officer seat.

NFPA compliant seat sensors and wiring shall be included in seats.

Each seat shall have a Type-2 pelvic and upper torso restraint-style seat belt made of a high visibility red material in accordance with NFPA.

Cab Door Map Pocket

A bolt-on aluminum map pocket shall be mounted on the rear of the center console, centered. The map pocket shall be constructed of 1/8" aluminum smooth plate with a finish to match the console.

The dimensions of the map pocket shall be approximately 10” high x 14” wide x 3” deep.

Cab Console

The console shall be centrally located and shall allow the driver and/or officer access to all components while seated with seat belts secured.

The console shall be constructed of aluminum smooth plate with a black Zolatone finish. The top surface shall have a non-reflective material for increased visibility of labels and controls.

All switches located on the console shall be clearly labeled and shall be back-lit for easy operation and visibility.

Battery Charger Receptacle

A 20 amp battery charger receptacle shall be installed in the specified location.

The receptacle shall be located driver's door step area.

The cover color shall be Yellow.

Battery Charger

An LPC 20 battery charger with remote mounted LED display shall be installed.

A fully automatic charging system shall be installed on the apparatus. The system shall have a 120 volt, 60 hertz, 7 amp AC input with an output of 20 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse.

The system shall include a remote charging status indicator panel. The panel shall consist of two (2) LED lights to provide a visual signal if battery voltage is good or drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status.

Driver Side Assembly

The driver side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The driver side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The driver side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Driver Side Compartments

The three (3) driver side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 57" high section and 12" deep in the upper 11" high section. The compartment shall contain approximately 39.2 cu. ft. of combined storage space. The door opening shall be approximately 42" wide x 68" high.

There shall be one (1) compartment located over the rear wheel. This compartment shall be approximately 56" wide x 34" high x 26" deep in the lower 23" high section and 12" deep in the upper 11" high section and contain approximately 23.6 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high.

There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56" wide x 68" high. The forward area of the compartment shall be approximately 42" wide x 68" high x 26" deep in the lower 57" high section and 12" deep in the upper 11" high section. The enhanced extended rear portion of the compartment shall be approximately 14" wide x 68" high x 24" deep in the lower 57" high section and 11" deep in the upper 38" high section. The total combined storage space shall be approximately 51.7 cu. ft. The door opening shall be approximately 56" wide x 68" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate.

Officer Side Assembly

The officer side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The officer side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a

3/16” (0.188”) wall thickness and 3/16” (0.188”) outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The officer side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Officer Side Compartments

The three (3) officer side compartments shall be constructed from 3003 H14 1/8” (.125”) smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheel. The compartment shall be approximately 42” wide x 68” high x 26” deep in the lower 30” high section and 12” deep in the upper 38” high section. The compartment shall contain approximately 30 cu. ft. of combined storage space. The door opening shall be approximately 42” wide x 68” high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56” wide x 34” high x 12” deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56” wide x 34” high.

There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56” wide x 68” high. The forward area of the compartment shall be 42” wide x 30” high x 26” deep in the lower area and 42” wide x 38” high x 12” deep in the upper area. The enhanced extended rear portion of the compartment shall be approximately 14” wide x 68” high x 24” deep in the lower 30” high section and 11” deep in the upper 38” high section. The total combined storage space shall be approximately 39.5 cu. ft. The door opening shall be approximately 56” wide x 68” high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8” (.125”) aluminum treadplate.

Storage Tunnel

The area directly behind the upper area of the officer side compartments shall be for the storage of NFPA equipment.

Rear Body Assembly

The rear body shall be constructed entirely of aluminum extrusions and interlocking aluminum plates and includes a full height center rear compartment.

The rear body frame shall be 6063-T5 1.5” x 4” and 1.5” x 3”aluminum extrusions with a 3/16” (0.188”) wall thickness and 3/16” (0.187”) outside corner radius and 1/8” (0.125”) aluminum smooth plate. The rear extrusions shall be welded both internal and external at each joint using an aluminum alloy welding wire.

Rear Body Compartment

The full height center rear compartment shall be constructed from 3003 H14 1/8” (.125”) smooth aluminum plate. The compartment shall be modular in design and shall not be a part of the body support structure.

The compartment shall be approximately 38” wide and shall vary in height and depth dependent upon water tank capacity.

The compartment seams shall be sealed using a permanent pliable silicone caulk. Machined louvers shall be provided for adequate ventilation.

Storage Compartments

A storage compartment shall be provided at the rear body compartment. The storage compartment shall be located to the officer side of the rear compartment.

The storage compartment shall be approximately 13” wide x 29” high x length of side assembly. The storage compartment shall store NFPA equipment.

The storage compartment shall include a vertical hinged door to secure contents. The door shall be constructed of 3/16” (.187”) aluminum smooth plate and shall have a push-button style latch. The compartment door shall be securely attached with a full-length stainless steel piano type hinge with 1/4” pin (outboard standard design, inboard when rear body includes beaver tail). The hinge shall be”staked” on every other knuckle to prevent the pins from sliding. The door shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 15.5" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum treadplate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertical from the diamond plate sheet a minimum of 1/8" (0.125") Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Enhanced Extended Compartment Framework

Each side of the tailboard shall be the external compartment frame work of the enhanced extended side compartments. The compartment frame work shall be 6063-T5 1.5"x 4"and 1.5" x 3" aluminum extrusions with a 3/16"(0.188") wall thickness and 3/16" (0.188") outside corner radius. The rear extrusions shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hosebed area. Each handrail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, and shall be mounted between chrome stanchions.

The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertical on the trailing edge of the body and appropriately sized handrail(s) mounted horizontal below the rear hosebed opening.

Enhanced Extended

Enhanced Extended Compartmentation stepped down below hosebed level. Includes embossed diamond plate compartment tops.

Roll Up Compartment Doors (7)

Seven (7) ROM brand roll up doors with satin finish shall be provided on a compartment up to 68” tall. The doors shall be installed in the following locations: L1, L2, L3, R1, R2, R3 and B1.

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.

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.

Permanent Shelves (2)

There shall be a permanent mounted aluminum shelf provided for compartment R1 at offset above extrusion and R3 at offset above extrusion. The shelves shall be at the offset within the compartment.

The shelf shall be constructed of 3/16” (.187”) smooth aluminum plate. 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.

Hose Bed Cover

A cover constructed of Red 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed. The rear of the cover shall have an integral flap that extends down to cover the rear of the hose bed. This flap shall be secured in place with heavy duty nylon straps to comply with the latest edition of NFPA 1901.

Vinyl Crosslay Cover

A cover constructed of Red 18 oz. PVC vinyl coated polyester shall be installed on the crosslay. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch.

The cover shall be held in place across the top of the body by chrome snaps. The sides of the cover shall have integral flaps that extend down to cover the sides of the crosslay. The side flaps shall be secured in place to comply with the latest edition of NFPA 1901.

Pump Module Width

Pump module shall be 76" wide.

Pump Module

Pump Module Frame

An extruded aluminum pump module shall be provided and located forward of the apparatus body. The pump module shall be constructed entirely of welded aluminum alloy extrusions and

interlocking aluminum plates. The pump module framework shall consist of 1.5" x 3" x .188" wall, 1.5" x 3" x .375" wall with center web and 3" x 3" x .188" wall extrusions.

The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration.

The exterior surface of the pump module framework shall have a sanded finish.

Pump Module Mounting

The pump module shall be attached to the chassis using four (4) center bonded isolation mounts and a steel mounting frame. The isolation mounts shall be 2.75" diameter and mount to the chassis with two (2) 4" x 4" x .312" A36 steel angles.

Pump Access

A pump service access door shall be provided at the front of the pump module. The door shall be secured with two (2) thumb latches.

Top Mounted Pump Control Area

The upper area of the module shall be configured for a top mount pump operator`s panel. The upper side walls of the module shall be tapered for improved operator visibility.

Crosswalk

An extruded aluminum crosswalk shall be provided at the front of the pump module. The crosswalk shall be integral to the pump module and be constructed entirely of aluminum extrusions. The crosswalk walkway shall be in accordance with NFPA in both step height and stepping surface. The crosswalk walkway floor shall be formed from .188" aluminum treadplate. The walkway floor shall be bolted on to the module and be easily removable to service chassis components or for replacement in the case of damage.

The crosswalk entry shall include two (2) 5" wide formed diamond plate steps located one (1) on each side offset forward and two (2) handrails, a minimum 24" long, located one (1) on each side mounted vertically on the forward extrusion of the pump module.

Pump Module Running Boards

The pump module shall include a running board on each side. The running boards shall be in accordance with NFPA in both step height and stepping surface. The running boards shall be formed from .125” aluminum treadplate. Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

	BIDDER COMPLIES	
	YES	NO

Stepping Surfaces

The top mount crosswalk and each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of .125". Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

Pump Panel Opening

The panel opening on the pump module shall be 39" wide.

Pump Module Height

The pump module height shall be 85".

Top Mount Pump Panels

The top mount gauge panel, driver and officer side pump panels shall be constructed of 14 gauge stainless steel.

The top mount gauge panel shall be able to lift forward for access to panel mounted electrical connections.

The driver and officer panels shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

Pump Access Doors

The driver and officer side pump module shall have a hinged pump panel with a lower fixed panel for bleeder valves.

The upper panels shall have vertical stainless steel piano type hinges with 1/4" pins along the forward edge of the pump module. The hinges shall be "staked" on every other knuckle to prevent the pins from sliding. The panels shall have push button style latches to secure the panels in the closed position. The hinged panels shall have one (1) pneumatic shock each to hold the panels in the open position.

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Module Logos

Logos with the OEM brand name shall be provided and shall be mounted one (1) each side on pump module/pre-connect panels. Logos shall be sized as applicable to available space on panels.

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator`s panel to operate the air horns.

The switch shall be labeled ”Evacuation Alert”.

Location: top mount control panel.

Double Crosslay Hosebed (2)

Two (2) crosslay hosebeds shall be provided on the pump module. The crosslays shall have increased depth to lower the hosebed and increase the carrying capacity. Each of the two (2) crosslay areas shall have a capacity of up to 400` of 2.0” double-jacket fire hose double stacked. The crosslay floor and side walls shall be constructed of 3/16” (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4” (.25”) smooth aluminum plate fixed divider with a sanded finish shall be provided to separate the two (2) hose storage areas.

Top Mount Walkway Compartments

The area directly below the top mount pump panel walkway shall include two (2) compartments, located one (1) each side. Each compartment shall provide approximately 1.5 cu. ft. of storage space (2.5 cu. ft. if equipped with speedlays). The compartments shall include spring loaded, vertically-hinged 1/8” (.188”) aluminum treadplate door with a push-button latch. A switch wired to the door ajar indicator light in the cab shall be provided. One (1) LED light shall be installed in each compartment.

1030 Gallon Water Tank

A 1030 gallon (US) ”R” booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2” (0.50”) thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection

in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40” apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3” above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

	BIDDER COMPLIES	
	YES	NO

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

Tank capacity is 1030 US gallon / 857 Imperial gallons / 3898 Liters.

Fill Tower Location

Fill tower(s) shall be located offset to officer side of water tank.

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 To Pump

One (1) manually operated 3” Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet. 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.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water 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.

30 Gallon Foam Tank

A 30 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 polypropylene material. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The foam tank shall have a manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). Foam fill tower shall be constructed of a Green colored material indicating type of foam utilized. The capacity of the tank shall be engraved on the top of the fill tower lid. The fill tower shall be located in the forward area of the tank. The tower shall have a 1/4" thick removable polypropylene screen. Inside the fill tower, approximately 1.5” down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower. The foam fill tower shall be removable to facilitate the cleaning of the foam tank.

The foam tank shall undergo extensive testing prior to installation in the truck. All foam tanks shall be tested and certified as to capacity. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

Hard Suction Hose Racks (2)

Two (2) hard suction hose storage racks shall be provided, one (1) on the driver side compartment top and one (1) on the officer side compartment top.

The storage rack shall be constructed of anodized extruded aluminum and includes two (2) spring-mounted latch handles with stainless steel scuff plates. The scuff plates shall be located on the hose bed side to protect the painted surface.

Each storage rack shall be capable of storing one (1) 6" x 10` hard suction hose.

Ladder Brand

The ladder brand capable of being carried on the unit shall be Alco-Lite.

Storage Tunnel Contents

Storage tunnel shall be capable of holding one (1) 24’ 2-section extension ladder, one (1) 14’ roof ladder, one (1) 10’ attic ladder, two (2) pike poles and one (1) standard backboard.

Hose Bed Folding Steps (3)

Three (3) Innovative Controls dual lighted LED folding steps shall be positioned to the driver side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Hose Bed Folding Steps (3)

Three (3) Innovative Controls dual lighted LED folding steps shall be positioned to the officer side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance

qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Folding Steps (8)

Eight (8) Innovative Controls dual lighted LED folding steps shall be located four (4) officer side front compartment face and four (4) driver side front compartment face. The folding steps shall meet current NFPA in step height and surface area.

Innovative Controls dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail each side shall be installed in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Rear Mud Flaps

The rear tires shall have a set of black mud flaps mounted behind the rear chassis wheels.

Body Height and Mainframe Construction

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The body mainframe shall include 3” x 3” 6061-T6 aluminum 3/8” (0.375”) wall crossmember extrusion or 3" x 3" I-beam section aluminum extrusion depending on the application at the front of the body. A solid 3” x 3” ”I-beam” section aluminum extrusion shall be provided the full width of the body forward and rearward of the rear wheel well. The crossmembers shall be designed to support the compartment framing and shall be welded to 1-3/16” x 3” (1.188” x 3”) solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16” x 2” (0.31” x 2”) fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact.

Body Mounting System

The main body shall be attached to the chassis frame rails with six (6) of 5/8" (0.625") diameter steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

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.

Hosebed Side Assembly

The hosebed side assemblies shall be made of 3" x 3" slotted aluminum extrusion and 3/16" (.188") smooth plate. The hosebed side assemblies shall provide a 90" high body.

The exterior hosebed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hosebed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

Hosebed

The area above the booster tank shall have a hose storage area provided. The hosebed shall be constructed entirely from maintenance-free, 3/4" deep x 7.5" wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hosebed shall include an open area for the fill tower(s). The hosebed design shall incorporate adjustable tracks in the forward area rearward of the fill tower(s) and the rearward area of the hosebed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a philips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hosebed mounted equipment).

The hosebed shall be easily removable to allow access to the booster tank below.

Hose Bed Dividers (2)

Two (2) hose bed dividers shall be provided full fore-aft length of the hose bed.

The hose bed dividers 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 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 dividers shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Hose Bed Divider Hand Holds (2)

There shall be a hand hole cut-outs on the trailing edge of each hose bed divider. The cut-outs is specifically sized for use in adjusting of the hose bed divider.

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 wheel well trim fenderett shall be constructed from 6063-T5 formed aluminum extrusion with a sanded finish. 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.

Body Rubrail Package

The main body of the apparatus shall have a rubrail package installed on all the lower outboard painted structural surfaces of the body. Each rubrail shall include a white reflective surface.

SCBA Straps (8)

Eight (8) straps shall be provided, one 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 straps shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

SCBA BOTTLE STORAGE (8)

Eight (8) SCBA bottle storage compartments with aluminum plate with hinged doors and push button latches shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped troughs made out of aluminum smooth plate with rubber inserts shall be provided to store SCBA bottles.

Pump Rating

The fire pump shall be rated at 1250 GPM.

Fire Pump System

The pump shall be a midship mounted Hale Qflo single stage centrifugal pump. The pump shall be mounted on the chassis frame rails and shall be split-shaft driven.

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 (2) 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 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 (1) 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.

Mechanical Seal

A mechanical seal shall be provided on the inboard side of the pump. The mechanical seal shall be two (2) inches in diameter and shall be spring-loaded, maintenance-free, and self-adjusting.

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 valve shall be mounted in the cab and be labeled ”PUMP SHIFT”. The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

	BIDDER COMPLIES	
	YES	NO

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.

Pump Certification: 1250 GPM

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. 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 current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

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.

Speed Counter

The test connection shall be installed on the pump panel to manually verify the vehicle engine speed displayed on the electronic tachometer.

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 module width and options selected. (Example 72" or 76" modules.)

Location: driver's side, officer's side.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-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.

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.

Intake 2.5 Top Mount Control Akron Valve

One (1) 2-1/2” suction inlet with a manually operated 2-1/2” Akron valve shall be provided on the officer 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 shall be controlled by a vertically mounted quarter turn locking handle located on the top mounted pump operator`s panel and shall visibly 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.

A 3/4" bleeder valve assembly will be installed on the side pump panel.

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.

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.

Intake Pressure Relief

A18 Series - PRESSURE RELIEF VALVE - TFT`s pressure relief valve is adjustable from 50 to 250 psi (3 to 14 bar) with easy to see 25 psi (2 bar) increments. The aluminum casting is plastic impregnated, hardcoat anodized, and TFT powder coat finished inside and out for maximum corrosion protection.

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.

Deck Gun 3" Discharge Akron Valve

One (1) 3” deck gun discharge outlet with a manually operated Akron valve and 3” stainless steel pipe shall be provided above the pump compartment.

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 shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA 1901.

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.

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.

Two (2) 1.5 Crosslays Akron Valves (2)

Two (2) crosslay discharges shall be provided at the front area of the body. The crosslays 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.

Left Panel 2.5 Discharge Akron Valves (2)

Two (2) 2-1/2” discharge outlets with a manually operated Akron valves 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.

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 1.

Left Rear 2.5" Discharge Akron Valve

One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be supplied to the left rear of the apparatus by a 2-1/2” stainless steel pipe.

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 rear discharge.

Deck Gun Location

Deck gun piping shall be positioned centered in deck gun channel. This location shall allow for optimal operation of a deck gun monitor once installed.

Bleeder Drain Valves (8)

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with a chrome-plated 1/4 turn handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve.

Top Mount Valve Controls (11)

For valve actuation, the apparatus pump panel shall be equipped with Innovative Controls Top Mount Valve Controls. The ergonomically designed grip-activated T-handles shall be chrome-plated zinc with recessed UV-resistant labels for color-coding and verbiage. The patented spring-loaded handle and control rod assembly shall open and close valves when the user simply squeezes the T-handle and pivots the rod. When the T-handle grip is released, the valve control shall lock at the desired position automatically to eliminate valve drift. No secondary manual tightening method shall be required.
A robust die cast and chrome-plated pivot arm shall house the internal locking mechanism protecting it from environmental hazards. A brass bushing and closely-toleranced stainless steel rod shall ensure long-term smooth valve control operation and never require lubrication.
The valve control handles shall mount to sections of decorative clear anodized aluminum extrusion, designed to evenly space the handles and provide a secure mount for the handle's pivot rod.

Garnish Ring Bezel

Innovative Controls intake and/or discharge garnish rings 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 garnish rings 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.

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.

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-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.

Gauges 2.5" (8)

The valve discharge gauges shall be 2 ½"(63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

4" Master Pressure Gauges w/Bezel

The master intake and master discharge gauges shall be 4"(101mm) diameter IC pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40F to +160F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

The two master gauges shall be installed into decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome plated plugs. The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

Foam System Plumbing: Foam System, If Required, Is Listed As Option

The foam system shall be located in the pump module area and shall provide foam capability for up to six (6) discharges.

The (6) discharges with foam capability (applicable only as optioned) shall be:

(2) crosslays

(1) front bumper jump line

(1) officer side rear body discharge

Vehicle Data Recorder

Data Recorder

A vehicle data recorder system shall be provided to comply with NFPA 1901, 2009 edition. 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 display that will continuously indicate the validity of each seat position.

The system shall include a display panel with LED back-lit ISO indicators for each seating position, seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

The display panel shall be located cab dash above transmission shift panel.

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a 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 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

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

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

• The network system must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
• 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.
• Each module that controls a device shall hold its own configuration program.
• Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.
• Load shedding power management (8 levels).
• Switch input capability for chassis functions.
• Responsible for lighting device activation.
• Self-contained diagnostic indicators.
• Wire harness needed to interface electrical devices with multiplex modules.
• The grounds from each device should return to 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 1901-Standard for Automotive Fire Apparatus
• 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 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.

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 delivery documentation per requirements of NFPA 1901. 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 NFPA 1901 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 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 V-MUX multiplex electrical system shall include a text display.

The display shall have the following features:

- Rugged vacuum fluorescent technology
- Two twenty character lines
- Programmed to show door ajar status and diagnostic information

The display shall be located center of dash.

Light Bar

A Whelen Justice series 56" all LED light bar model JE2NFPA shall be installed. The light bar shall consist of four (4) corner facing LIN6 red LED modules, six (6) forward facing CON3 Linear LED modules, four (4) red / two (2) white, and MKEZ7 mounts.

Lens color: Clear.

The white LEDs shall be switched off in blocking right of way mode.

The light bar shall be installed in the following location: Centered on the front cab roof.

Lower Level Warning Light Package

Eight (8) Whelen Super 600 LED light heads and two (2) Whelen Super 500 LED light heads shall be provided.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

- Two (2) Whelen 600 Super LED Red lights on the front of the apparatus facing forward
- Two (2) Whelen 600 Super LED Red lights on the rear of the apparatus facing rearward
- Two (2) lights each side of the apparatus, one (1) Whelen 600 Super LED Red each side at the forward most point (as practical), and one (1) Whelen 500 Super LED TIR6 Red with model 5TSMAC chrome flange each side at the rearward most point (as practical).
- One (1) Whelen 600 Super LED Red light each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.

All warning devices shall be surface mounted in compliance with NFPA standards.

Upper Rear Warning Lights (2)

Two (2) Whelen model L31H Super LED beacons with Red domes shall be supplied.

The lights shall be located rear upper body on aerial style brackets to meet Zone C upper requirements.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.

The light shall be located center overhead.

Electronic Siren

A Federal PA300 siren model 690010 solid state electronic siren with attached noise-canceling microphone shall be installed. The unit shall be capable of driving a single high power speaker up to 200 watts to achieve a sound output level that meets Class "A" requirements.

Operating modes shall include Hi-Lo, yelp, wail, P.A., air horn and radio re-broadcast.

The siren shall be recessed mounted in the cab.

Electronic Siren Control Location

The electronic siren control shall be located in the center console.

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 "E-ONE" 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 1901 requirements.

The speaker shall be located officer side front bumper.

Tail Lights (2)

Two (2) Whelen model 600 series LED (Light Emitting Diode) lights with one (1) Whelen 600 series halogen light shall be installed in a Cast 3 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.
- Halogen 27 watt clear back-up light in lower position.

A one-piece polished aluminum trim casting shall be mounted around the three (3) individual lights in a vertical position.

License Plate Light

One (1) Truck-Lite model 15905 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.

Body Marker Lights

TecNiq 3/4" LED grommet clearance lights shall be installed as specified.

Upper Body:

• One (1) red LED clearance light each side at rear of body, facing rear.

Lower Body:

• Three (3) red LED clearance lights centered at rear.
• One (1) red LED clearance light side facing at the trailing edge on either side of the apparatus body.
• One (1) amber LED clearance light side facing at front of body.
• One (1) amber LED auxiliary turn light side facing at front of body.

Recessed Step Lights (2)

Two (2) recessed incandescent 4” lights with clear lens shall be provided to illuminate the step at the location specified.

Location: one (1) each side of the top mount walkway.

Compartment Light Package

There shall be a minimum of one (1) TecNiq model T440 4” circular LED (Light Emitting Diode) light mounted in each body compartment greater than 4 cu. ft. Compartments over 36” in height shall have a minimum of two (2) lights, one (1) high and one (1) low. Transverse compartments shall have a minimum of two (2) lights, located one (1) each side.

Compartment lights shall be wired to a master on/off switch on the cab switch panel. Each light shall be in a resilient shock-absorbent mount for improved bulb life.

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 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.

Hose Bed Light

An Optronics round LED light model TLL44 shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The hose bed light shall be switched with the work light switch in the cab.

Deck Lights (2)

Two (2) Optronics round 12 volt LED model TLL44 floodlights shall be installed at the rear of the apparatus. Each light shall provide 720 lm effective output. Each light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The rear deck lights shall be switched with the work light switch in the cab.

Location: rear body/beavertail area on the trailing edge up high.

Crosslay Light

An Optronics round LED light model TLL44 shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The crosslay light shall be switched with the work light switch in the cab.

Engine Compartment Light

There shall be lighting provided in compliance with NFPA to illuminate the engine compartment area.

Pump Compartment Light

An incandescent 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.

Cab Dome Lights (2)

Two (2) 7" clear dome light with 3-position switch shall be installed, one above each front cab door.

Pump Panel Light Package (6)

Six (6) LED pump panel lights shall be provided. The lights shall be located three (3) each side under a light shield directly above the left and right side pump panels. Four LED lights shall be provided for the top mount pump panel. The lights shall be Tecniq EON with polished stainless steel housings. The light shields shall be formed from 14 gauge brushed finish stainless steel. The work light switch in the cab shall activate the lights when the park brake is set.

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.

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

Un-Painted Pump/Pre-Connect Modules

All applicable pump application modules shall have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module shall be painted job color.

Paint Body Small: To Match Existing Butts County Fleet

The apparatus body shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Commercial Cab Paint: To Match Existing Butts County Fleet

The Freightliner cab shall be painted by the chassis supplier. The cab paint color shall match FLNA3225 Red.

Paint shall be warranted by the cab/chassis manufacturer.

Striping

Reflective striping shall be provided and installed by the customer.

Designated Standing / Walking Area Indication

A 1" wide yellow line shall be applied to indicate the outside perimeter of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps,

ladders and areas with a railing or structure at least 12" high are excluded from requiring the line.

Rear Body Scotchlite Striping

A printed sheet pattern Scotchlite chevron striping shall be provided on the rear of the apparatus in compliance with NFPA. The printed pattern shall consist of 6” Yellow/Red alternating stripes in an ”A” pattern.

The striping shall be located on the rear compartment facing, rear panels and/or doors outboard of and above the rear compartment opening.

Standard 1 Year Warranty

The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

10 Year 100,000 Mile Structural Warranty

The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

10 Year Stainless Steel Plumbing Warranty

The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.

10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

Topcoat & Appearance: Gloss, Color Retention, Cracking	Coating System, Adhesion & Corrosion: Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling

0 to 72 months	100%	0 to 36 months	100%
73 to 120 months	50%	37 to 84 months	50%
		85 to 120 months	25%

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in electronic format (CD-ROMs) -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 fire fighting 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 CD-ROM 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 copy shall include a table of contents with links to the specified documents or illustrations.

The CD 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.

	BIDDER COMPLIES	
	YES	NO

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 fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.

Bidding Information

Bid Release Date:	April 5, 2017
Bid Due Date:	Friday, May 5, 2017 by 2:00 PM
Bid Opening Date:	Friday, May 5, 2017 at 2:30 PM
Submitted to:	J. Michael Brewer, Government Relations Director Butts County Board of Commissioner's Office 625 W. Third Street, Suite 4 Jackson, Georgia 30233
Questions:	All questions and clarifications should be directed to the following Chief Mike Wilson OR Assistant Chief Randy Prince 678-774-8154
Format:	Bids must be hand delivered OR sent through carriers (USPS, FEDEX, UPS or similar). No bids received after the time and date stated above shall be accepted.

The Butts County Board of Commissioners reserves the right to accept the bid which in their opinion is the most responsive to this inquiry. They also reserve the right to reject any or all bids.