SA 1-4040 (1982)

Pittsburg County, Oklahoma
COUNTY PURCHASING OFFICE
Pittsburg County Court House
McAlester, Oklahoma
Phone: (918) 423-4934

INVITATION TO BID

PLEASE REVIEW TERMS AND CONDITIONS ON REVERSE SIDE RELATING TO SUBMISSION OF THIS BID.
Notarized Affidavit completions and signature required on reverse side.

DATE ISSUED **12-Aug-13**
PAGE 1 OF _____

BID NUMBER	BID CLOSING DATE AND HOUR	REQUIRED DELIVERY DATE
Bid # 4	**August 26, 2013 @ 10:00AM**	Days after award of Purchase Order
TERMS:		DATE OF DELIVERY:

Item	Quantity	Unit of issue	DESCRIPTION	Unit Price	Total
			Board of County Commissioners wishes to advertise for the following for the High Hill Volunteer Fire Department. **One (1) new 3000 Gallon Wetside, Tanker Fire Apparatus** **Lease Purchase with financing included** **See attached specifications**		

TERMS AND CONDITIONS

1. Sealed bids will be opened in the Commissioner's Conference Room, Pittsburg County Courthouse, McAlester, Oklahoma, at the time and date shown on the invitation to bid form.
2. Late bids will not be considered. Bids must be received in sealed envelopes (one to an envelope) with bid number and closing date written on the outside of the envelope.
3. Unit prices will be guaranteed correct by the bidder.
4. Firm prices will be F.O.B. destination.
5. Purchases by Pittsburg County, Oklahoma, are not subject to state or federal taxes.
6. This bid is submitted as a legal offer and any bid when accepted by the County constitutes a firm contract.
7. Oklahoma laws require each bidder submitting a bid to a county for goods or services to furnish a notarized sworn statement of non-collusion. A form is supplied below.
8. Bids will be firm until delivered

(DATE)

AFFIDAVIT: I, the undersigned, of lawful age, being first duly sworn on oath say that he (she) is the agent authorized by the bidder to submit the above bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any state official or employee as to quantity; quality or price in the prospective contract or any other terms of said prospective contract; or in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract; that the bidder/contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma (or other entity) any money or other thing of value, either directly or indirectly in the procuring of the award of a contract pursuant to this bid.

Subscribed and sworn before this _____day
of_____20_____ (seal)

Firm:_____

My commission expires_____ Signed by:_____Title:_____
(MANUAL SIGNATURE OF UNDERSIGNED)

_____ Address:_____Phone:_____
NOTARY PUBLIC (CLERK OR JUDGE)

City:_____ State_____

Zip_____

NOTE: Other terms and conditions can be added at the discretion of the county officers.

RESOLUTION
To
Advertise

The Board of County Commissioners, Pittsburg County, met in regular session on Monday, August 12, 2013.

WHEREAS, the Board of County Commissioners, Pittsburg County, wishes to advertise for the following for the High Hill Volunteer Fire Department:

One (1) new 3000 Gallon Wetside, Tanker Fire Apparatus
Lease Purchase with financing included

A bid package containing complete specifications and an "Invitation to Bid" are available at the Pittsburg County Clerk's Office, 115 E. Carl Albert Pkwy. Room 103, McAlester, Oklahoma 74501 or online at pittsburg.okcounties.org.

THEREFORE, each competitive bid submitted to the County must be accompanied with an affidavit for filing with the competitive bid form, as required by 61 O.S. § 138.

Sealed bids will be received and filed with the Pittsburg County Clerk and opened on August 26, 2013 at 10:00 a.m. in the Board of County Commissioners Conference Room, Pittsburg County Courthouse, 115 E. Carl Albert Pkwy., McAlester, Oklahoma. Contract will be awarded to the lowest or best bidder. The Board of County Commissioners, Pittsburg County reserves the right to reject any and all bids and re-advertise.

BOARD OF COUNTY COMMISSIONERS
PITTSBURG COUNTY, OKLAHOMA

CHAIRMAN

VICE-CHAIRMAN

MEMBER

HOPE TRAMMELL - CO. CLERK
PITTSBURG COUNTY

ATTEST:

COUNTY CLERK

SPECIFICATIONS

FOR

HIGH HILL
FIRE DEPARTMENT

FOR A

3000 Gallon Wetside

Tanker Fire Apparatus

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BIDDER COMPLIES

YES | NO

Delivery

The bidder shall state the time required for delivery of the completed unit on the proposal page. 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.

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, in its most recent edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.

BIDDER COMPLIES	
YES	NO

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 cover sheet. 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.
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.

BIDDER COMPLIES

YES | NO

A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the bid.

Proposal Price

Each bidder's proposal must include all items required in the specifications unless a specific exception is taken. Any bidder who option prices an item included in these specifications that does not specifically require option pricing will have their proposal rejected without further cause.

Lease Purchase

Lease purchase with financing must be included with 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 have a full service repair facility located within the State of Oklahoma, No Exceptions. Bidder shall supply photos of their full service repair facility. Bidder must have certified master EVT mechanics for all service requirements. 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.

Non NFPA Compliance

This vehicle and all supplied components of the vehicle do not have to meet NFPA requirements.

Fire Apparatus/Rescue 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.

Wheel Covers

The front and rear wheels shall have full stainless steel wheel covers. The outer wheels shall be covered with American made Real Wheels or equivalent brand mirror finish, 304L grade, non-corrosive stainless steel wheel simulators with pre-mounted lug nut covers.

Tire Pressure Monitor

The apparatus shall be provided with tire pressure indicating valve stem caps. The indicators shall be installed on each tire and be a heavy duty design manufactured specifically for trucks. When tire is properly inflated, the indicator inside the cap shall be green, and when the tire is underinflated by 10%, the indicator inside the cap shall be red.

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.

Vehicle Speed

The maximum speed shall be electronically limited to 60 MPH as required by NFPA 1901.

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.

Tow Hooks

The chassis shall have two (2) forward frame mounted tow hooks.

Chassis Trim Package

A diamond plate trim package shall be provided for an International or equivalent two (2) door cab.
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 driver side shall include battery access and a mounting surface for the battery charger receptacle and air inlet (as applicable).

Cab Model

The cab and chassis shall be an International 7400 or equivalent two door chassis with 330 HP or more.

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.

Seating Capacity Tag

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

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 sanded 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 Charging Connector

A 12 volt battery charging connector shall be installed on the apparatus. The connector shall be an Anderson model SB175 or equivalent with mechanically keyed housing and weatherproof cover. A mating connector shall be shipped loose for connection to the fire department`s station mounted battery charger.
The connector shall be installed in the driver`s door step area.

Apparatus Body

The apparatus body shall be constructed entirely of aluminum extrusions with interlocking aluminum plates. An extruded modular aluminum body is required due to the high strength-to-weight ratio of aluminum, corrosion-resistant body structure, easy damage repair, and lighter overall body weight to allow for increased equipment carrying capacity.

BIDDER COMPLIES | YES | NO

The body design shall provide 56 cubic feet of storage, which exceeds the minimum NFPA 1901 requirements.
The entire body shall be constructed with aluminum extrusions. Body designs that incorporate steel sub-frames connected to aluminum compartments are not as corrosion-resistant and not acceptable.

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. 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. The rear of the body shall be spring mounted to allow for chassis flex. 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. Three (3) U-shaped brackets shall be installed on the bottom of the tank to retain the water tank. The brackets shall be equally spaced along the tank centerline and wrap around the body crossmembers.
To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5" of the frame rail top.

Side Assembly

The driver and officer side assemblies 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 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.

BIDDER COMPLIES | YES | NO

Compartments

The compartments shall be constructed from formed 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. 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 tread plate. The compartment top shall be removable for easy access to the main body wiring harness.

Compartment Sizes

Left Side:
There shall be one (1) compartment (L1) located ahead of the rear wheels. The compartment shall be approximately 62" wide x 30" high x 26" deep. The compartment shall contain approximately 28 cu. ft. of storage space. The door openings shall be approximately 62" wide x 30" high.
Right Side:
There shall be one (1) compartment (R1) located ahead of the rear wheels. The compartment shall be approximately 62" wide x 30" high x 26" deep. The compartment shall contain approximately 28 cu. ft. of storage space. The door openings shall be approximately 62" wide x 30" high.

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 tread plate. The wheel well trim fenderettes shall be constructed from 6063-T5 formed aluminum extrusion. 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.

Rear End Assembly

The rear end shall be constructed of vertical and horizontal extrusions with interlocking smooth plate panels. The center area shall have a notched area to allow for tank dump valve. The vertical, horizontal, and smooth plate panels shall have a sanded finish.

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 12" 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 tread plate and shall be reinforced with 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 vertically 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.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus body shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer`s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 1/8" (0.125") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.
The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.
A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.
A polished stainless steel Hansen D-ring style or equivalent twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.
The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.
The door(s) shall be installed in the following location(s): L2, R2

Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 1/8" (0.125") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.
The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.
A polished stainless steel Hansen D-ring style or equivalent twist-lock door handle a with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.
The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.
The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.
The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).
The door(s) shall be installed in the following location(s): L1, R1

Hose Bed Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester or equivalent 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 Black 18 oz. PVC vinyl coated polyester shall be installed on the crosslay. The base fabric shall be 1000 x 1300 Denier Polyester or equivalent 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.

Triple Crosslay Hosebed

Three upper hose storage areas shall be provided on the pump module, two (2) for hose pre-connected to the fire pump and one for dry hose storage. The hose beds shall be offset to the front of the pump module.

Double Pre-connected Crosslay

A double stacked, double crosslay shall be provided on the pump module. The hose storage areas shall have a capacity for up to 200` of 2.0" double jacket hose each. The crosslay floor shall be constructed of 3/16" (.188) smooth aluminum plate and shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4" (.25") smooth aluminum plate non-adjustable divider with a sanded finish shall be provided to separate the two (2) hose storage areas.

300 ft. of rubber lined, rubber jackets hose will be provided.

Dry Hose Storage

An area directly rearward of the pre-connect storage shall be provided for storage of non-pre-connected hose. The area shall have a storage capacity for up to 200` of 2.5" double jacketed hose. The hose storage area floor shall be constructed of 3/16" (.188) smooth aluminum plate and shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4" (.25") smooth aluminum plate non-adjustable divider with a sanded finish shall be provided to separate the area from the forward pre-connected storage.

Pump Module

A pump module shall be provided and located forward of the body. The pump module shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. The pump module design and mounting shall be separate from the body to allow 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 shall have a sanded finish.

Pump Module Running Boards

The pump module shall include a running board on each side of the pump module. The running boards shall be in accordance with NFPA in both step height and stepping surface. The maximum step height to each running board shall not exceed 24". The running boards shall be formed from 1/8" (.125") aluminum treadplate. 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 1/8" (.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Side Mount Pump Panels

The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

Pump Access Door

The officer side pump module shall include an upper horizontally hinged pump access door. The door shall be constructed of 3/16" (.187") aluminum treadplate. The compartment door shall be securely attached with a full-length stainless steel piano type hinge with 1/4" pins. The hinge shall be "staked" on every other knuckle to prevent the pin from sliding. The door shall include two (2) push-button style latches to secure the door in the closed position and two (2) hold-open devices to hold the door in the open position.

Pump Panel Tags

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

Water Tank

A 3000 gallon (U.S.) booster tank shall be supplied. The booster tank shall be of a pinned baffle design. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure.
The booster tank top, sides, and bottom shall be constructed of black UV-stabilized copolymer polypropylene. The copolymer polypropylene tank material shall be welded together utilizing thermoplastic welding technology. A clean hot air temperature controlled process, shall ensure that each weld reaches its plasticized state without cold or hot spots. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.
The booster tank shall have a fill tower with a rearward hinged lid. The fill tower shall be centrally located on the tank and shall assist with tank ventilation. The fill tower shall include a removable polypropylene screen.
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. A 3" cleanout plug shall be shall be provided at the bottom of the tank sump.
The booster tank shall include longitudinal and latitudinal baffles. The baffles shall be interlocking and thermo welded to the shell of the tank to minimize water surge during travel and provide enhanced road handling stability. The baffle design shall allow waterflow in accordance with NFPA during tank filling or pump operations.
The tank overflow piping shall exit aft of the chassis' rear axle. This drain configuration shall assure that rear axle tire traction shall not be affected when moving forward by overflowing water.
The booster tank shall undergo extensive testing prior to installation in the truck. The testing shall include an electronic spark and tank fill test after both the internal and external tank shell welds are completed.
A lifetime manufacture's limited warranty shall be included.

BIDDER COMPLIES | YES | NO

Tank capacity shall be 3000 US gallons / 2498 Imperial gallons / 11356 Liters.

Dump Provision

Special provisions for mounting a Newton or equivalent dump valve on the poly water tank shall be provided.

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 or equivalent 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 Akron or equivalent 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 3 Akron Air Valve

One (1) air actuated 3" Akron or equivalent valve shall be installed between the pump suction and the booster tank, 4" piping, with flex hose and stainless steel hose clamps connect to the tank. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.
The valve shall be an Akron 8800HD series or equivalent 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 Akron or equivalent 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.

Rear Direct Tank Fill

One (1) 3" rear direct water tank fill shall be provided.
The valve shall be installed between the fill connection port and the water tank to prevent water from flowing out of the tank after filling or disconnecting of the fill line. The connection shall include an inlet strainer, 3" FNST inlet swivel with droop and plug with retainer. The valve shall be constructed of brass and shall be slow closing per NFPA.

The valve control shall be a swing handle located on the valve that 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.
The direct tank fill shall be located to the officer's side rear of the body.

Rear Swivel Dump

A tank dump shall be provided at the rear of the apparatus.
The tank dump shall be a Newton Kwik 6001 Swivel Dump or equivalent and shall include a 10"x 10" flip-up valve plate for maximum water flow. The lower portion of the dump assembly shall swivel 180 degrees and shall include a manual telescopic chute extension that shall extend the dumping past the sides of the body and rear tailboard area and have two locks one each side.
The dump valve shall be manually actuated from the upper area of the dump assembly and shall be accessible from the driver or officer side during side to side dumping operations.
The exterior surface of the dump assembly shall be mild steel.

Ladder

The ladder brand capable of being carried on the unit shall be Duo-Safety or equivalent.

Ladders

The length of ladders capable of being stored shall be the following: 24' 2-section and 14' roof ladder.

Adjustable Ladder Brackets

There shall be two (2) adjustable ladder brackets provided with spring-loaded hold-down handles mounted in the adjustable ladder tracks.
The tracks shall be located to the driver's side of the body.

Adjustable Tracking

Adjustable tracking shall be provided on the driver's side of the apparatus.
The tracking shall be positioned above the compartment top and shall allow for maximum adjustment of items mounted to the tracks.

Hard Suction Storage

Two aluminum storage tray(s) shall be provided and shall be capable of storing two (2) light weight hard suction hose(s) (hose to be included).
The storage tray shall include two (2) NFPA compliant hose restraints.
The tray(s) shall be located driver side in adjustable track (above ladder brackets if applicable).

Portable Tank Rack Cover

The Zico or equivalent drop down rack shall have a diamond plate cover(s) provided. The cover shall wrap over the top of the tank and along the outboard side between the outboard rack assemblies.

Portable Storage Tank Rack

A Zico QUIC-LIFT Portable Tank System (PTS) or equivalent rack shall be provided. The rack shall lower a portable tank from the stored position to provide a safe and convenient height for unloading and loading. A 3000 gallon aluminum frame hypalon liner dump tank to be provided.

The rack shall be electrically operated by two (2) durable high cycle 12 volt actuators and controlled by a 30 amp two-pole double-throw momentary switch located at the rear compartment face office side. The control switch location shall allow the operator to monitor operations, monitor positioning of apparatus mounted equipment in the storage racks travel path and ground personnel while lowering and raising the rack.

The storage rack shall be self-locking in any position during operation. A visual signal shall be provided to indicate when the ladder rack is in motion by two (2) yellow flashing lights installed one (1) on each side of the rack.

The rack shall also be wired through the door ajar indicator light located in the cab to alert the driver that the rack is not stowed if the parking brake is released.

The storage rack shall be capable of storing a maximum of three hundred pounds (300 lbs).

The rack shall be located to the officer side on compartment top of the body and shall be capable of storing a 3000 gallon aluminum frame tank.

Access Ladder

A ladder shall be provided to access the top of the apparatus body. The ladder shall be constructed with 3/8" aluminum plate side rails and 1-1/4" diameter extruded ribbed aluminum steps. The ladder shall be designed with a slight inward taper to facilitate easier climbing. LED lighting shall be provided to illuminate the ladder steps per NFPA.
The ladder shall be located rear of body officer side.

Rear Mud Flaps

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

Hose Bed Divider

There shall be a hose bed divider provided the full fore-aft length of the hose bed.
The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius

corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.
The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Overall Height Restriction

The apparatus shall have no overall height restrictions.

Overall Length Restriction

The unit has no overall length restrictions.

Hosebed Storage Area

The upper sides and front of the water tank shall be extended upward to provide a hose storage area.
The hosebed area shall be approximately 8.75" deep to the hosebed flooring. Width and length shall depend upon overall tank and body requirements.
A removable hosebed shall be provided and shall be constructed entirely from maintenance-free, 3/4" deep x 7.5" wide, extruded aluminum slats that shall be pop-riveted into a 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 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.
The hosebed shall be easily removable.

Light Shield

There shall be a shield mounted over the electrical items at the center upper rear of the apparatus to protect them from damage. The shield shall be constructed from .125" aluminum diamond plate.

Rear Side Compartments

Compartments

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

Compartment Sizes

Left Side:
There shall be one (1) compartment (L2) located behind the rear wheels. The compartment shall be approximately 30" wide x 30" high x 26" deep. The compartment shall contain approximately 13.54 cu. ft. of storage space. The door openings shall be approximately 30" wide x 30" high.
Right Side:
There shall be one (1) compartment (R2) located behind the rear wheels. The compartment shall be approximately 30" wide x 30" high x 26" deep. The compartment shall contain approximately 13.54 cu. ft. of storage space. The door openings shall be approximately 30" wide x 30" high.

SCBA Wheel Well Bottle Storage

The body wheel well area shall store up to eight (8) SCBA bottles- four (4) on the officer side and four (4) on the driver side. The bottles shall be externally secured in each storage area by a vertically hinged door which shall be secured in the closed position by a push button latch. The doors shall have a brushed stainless steel finish.
Each storage area shall provide individual storage of a bottle and shall not allow forward or rearward movement of the bottle. The bottle(s) shall be removable from the storage area without the bottle(s) coming into contact with any surface area of the wheel well (NO EXCEPTIONS).

Pump Rating

The fire pump shall be rated at 1000 GPM.

Pump

A Hale MBP or equivalent pump shall be provided and shall be of a size and design to mount on the chassis rails. The pump shall have the capacity of 1000 gallons per minute (U.S. GPM/4000 Liters per minute). The pump shall be driven by a power take off (PTO) from the chassis transmission.
The entire pump shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be free from objectionable pulsation and vibration. The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 bar). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. (Lower tensile strength cast iron not acceptable).
The pump body shall be vertically split, on a single plane for easy removal of entire impeller assembly including clearance rings. The pump shaft to be rigidly supported by two bearings for minimum deflection. The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated. The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machines, hand-ground and individually balanced.
The vanes of the impeller intake eye shall be hand ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.
The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately

machined hand ground and individually balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.

Gearbox

The pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.
All gears both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. (No exceptions.)
The pump ratio shall provide the maximum performance with the engine and transmission of the chassis.

Pump Intake

One (1) 6" diameter suction port with 6" NST male threads shall be provided and located to the driver side of the pump. The inlet shall include one (1) chrome cap (shipped loose).

Manual Master Drain

A manual master drain valve shall be installed and operated from the driver side. The master pump drain assembly shall consist of a Class 1 or equivalent bronze master drain with a rubber disc seal.
The manual master drain valve shall have twelve (12) individually-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.
The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Pump & Roll

The apparatus shall be capable to Pump & Roll. The Pump and roll kit will include the following items.
Tank Level Gauge
A miniature tank indicator shall be installed in cab. The indicator shall show the volume of water in the tank on four (4) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees.
Tank to Pump Controls
(1) Control in Cab, and (1) Pump Panel.
Discharge Preset Relief
There shall be installed a constant pressure relief system that will limit the maximum discharge pressure of 125psi for the fire pump during the Pump and Roll application. The system shall

automatically dump at 125psi back into the intake side of the pump. A auto shutoff valve will open when the PTO engaged, trans in gear, and park brake not set. System will not engage during stationary pumping.
Digital Master Pressure Gauge
The apparatus Discharge Pressure Gauge shall be equipped with Class 1 or equivalent digital pressure gauge. The pressure gauge shall be located in the Cab for Pump&Roll.
The digital pressure gauge display shall be a waterproof display with super-bright digits, approximately 1/2" high, for readability in all types of emergency situations.
A weatherproof transducer (transmitter) shall be supplied and mounted in the appropriate location in the piping system. The individual transducers shall be connected to the readout at the pump panel using the appropriate wiring in accordance with the instructions supplied by Class 1.

Factory Pump Test

The fire pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus. The tests shall be conducted at the manufacturer`s approved facility and certified by the body manufacturer. The certification shall include the pump test, pressure control system test, priming device tests, vacuum test and water tank to pump flow test.

Left Intake 2.5 Valve

One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron or equivalent valve shall be provided on the left side pump panel.
The valve shall be an Akron 8800HD series or equivalent 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 Akron or equivalent 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 Relief Valve

The pump shall be equipped with an Akron style 59 or equivalent cast brass, variable-pressure-setting relief valve on the pump suction side. It shall be designed to operate at a maximum inlet pressure of 250 PSI. The relief valve shall be normally closed and shall be set to begin opening at 125 PSI in order to limit intake pressures in the pumping system. When the relief valve opens,

the overflow water shall be directed through a plumbed outlet to discharge below the body in an area visible to the pump operator. The overflow outlet shall terminate with a male 2-1/2" NST threaded fitting to allow the overflow water to be directed away from the vehicle with a short hose (supplied by the fire department) during freezing weather or under other conditions where an accumulation of water around the apparatus might be hazardous.

1.5 Single Crosslay Valve

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of hose from either side of the apparatus.
The crosslay hose bed shall consist of a 2" heavy-duty hose coming from the pump discharge manifold to the 2" swivel. The hose shall be connected to a manually operated 2" Akron or equivalent valve. The valve shall be an Akron 8800HD series or equivalent 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 Akron or equivalent 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 Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron or equivalent valve shall be provided at the left hand side pump panel.
The valve shall be an Akron 8800HD series or equivalent 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 Akron or equivalent 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 Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron or equivalent valve shall be provided at the right side pump panel.

The valve shall be an Akron 8800HD series or equivalent 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 or equivalent 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, right side discharge 2.

Controls, Push-Pull T Handle

Control handles for tank supply, tank fill and all discharges shall be Push-Pull "T" style controls. The valve control levers shall be a chrome push-pull locking "T" handle located at the pump operator`s panel and shall visibly indicate the position of the valves at all times. The control levers shall be located directly adjacent to one another and shall be mounted in line so they are in the same position when shut off. The control lever shall be connected directly to its respective valve by a .718" OD rod to form a direct linkage control system.

Bleeder Drain Valve [Qty: 2]

A 3/4" bleeder valve shall be provided for the noted discharge(s). The bleeder valve lever shall be stainless steel and shall be a lift style handle for ease of operation. The drain shall be located at the main pump panel.

Bleeder shall be plumbed for use with the: crosslay preconnect, left discharge, right discharge.

Booster Hose Reel

A Hannay or equivalent booster reel shall be provided and located under rear body.
The booster reel shall be constructed utilizing an all-aluminum welded base. Reel bushings shall be manufactured from Nylatron or equivalent to ensure maintenance-free operation. A 12 volt electrical motor shall be provided and will rewind the reel with a chain and sprocket drive mechanism. All electrical switch connections shall be coated to protect against moisture. The booster reel shall have a capacity for up to 200` of 1" booster hose. A rewind switch shall be provided above the rollers on the driver side to assist with rewinding the deployed hose. Plumbing to the reel shall be a 1-1/2" flexible line with the discharge control located at the operator`s control panel. A blowout shall be included with control on pump panel if chassis is equipped with an air system.
All fabricated piping shall be constructed of a minimum of Schedule 10 stainless steel pipe to reduce corrosion of the lines.

Pump Pressure Governor

The apparatus shall be equipped with a Class 1 or equivalent "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.

Tank Level Gauge

One (1) Class 1 brand Intelli-Tank ™ or equivalent water tank level gauge shall be located at the pump operator`s panel of the apparatus to provide wide angle viewing and a high-visibility display of the water tank level. Four (4) ultra-bright LED`s (light emitting diodes) on the display module allow the full, 3/4, 1/2 and refill levels to be easily distinguished at a glance.
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.
The system shall calibrate to any size and shape of tank and has a built-in diagnosis feature. It comes complete with an industrial pressure transducer, which will provide nine (9) accurate levels of indications. Each display also has a programmable night dimming feature.

Gauge Pressure 4.5" 30-0-400 [Qty: 2]

A Class 1 or equivalent weatherproof 4-1/2" compound vacuum pressure gauge with a range of 30-0-400 shall be installed on the pump panel. The gauge shall be filled with a liquid solution.

Gauge Pressure 2.5" 30-0-400 [Qty: 2]

A Class 1 or equivalent weatherproof 2-1/2" compound vacuum pressure gauge with a range of 30-0-400 shall be installed on the pump panel. The gauge shall be filled with a liquid solution to assure visual reading to within 1% accuracy.
Gauge shall be provided for the following discharge(s): 1.5 in. crosslay preconnect, left side discharge 1, left side discharge 2, right side discharge 1, right side discharge 2.

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a Weldon V-MUX or equivalent 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 or equivalent 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 or equivalent 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 tests 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.

Light Bar

A Whelen Justice series 56" all LED light bar model JE2NFPA or equivalent 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

A lower level warning light package consisting of ten (10) Whelen LIN3 Super LED light heads or equivalent 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 LIN3 Super LED or equivalent red lights on the front of the apparatus facing forward.
• Two (2) Whelen LIN3 Super LED or equivalent red lights on the rear of the apparatus facing rearward.
• Two (2) Whelen LIN3 Super LED or equivalent red lights each side of the apparatus, one (1) each side at the forward most point (as practical), and one (1) each side at the rearward most point (as practical).
• One (1) Whelen LIN3 Super LED or equivalent 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, in rear wheelwell offset to front, and in rear wheel well offset to rear.
All warning devices shall be surface mounted in compliance with NFPA standards.

Upper Rear Warning Lights

Two (2) Whelen model RB6T rotating beacons or equivalent with driver red, officer amber domes shall be supplied. Each light shall contain a 60 watt halogen bulb with dual parabolic reflectors and produce 130 FPM.
The lights shall be located rear upper body on aerial style brackets to meet upper Zone C requirements.

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.
The light shall be located center console.

Directional Traffic Warning Light

One (1) Whelen TAL65 LED 36" long Traffic Advisor or equivalent with amber lenses shall be provided. The unit shall have a manual override of directional signal with a slide switch mounted in the chassis cab.
The light shall be installed at the rear of the body to direct traffic around the vehicle.

Directional Light Bar Control Location

The directional light bar control head shall be located in the center console.

Electronic Siren

A Whelen 295SLSA1 electronic siren or equivalent shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

Electronic Siren Control Location

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

Siren Speaker

One (1) Whelen model SA315P 100 watt speaker or equivalent shall be provided. The speaker shall have a nylon composite black housing with front loaded, powder coated speaker driver. 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 center front bumper.

License Plate Light

One (1) Truck-Lite model 15905 or equivalent white LED license plate light mounted in a Truck-Lite model 15732 or equivalent chrome plated plastic license plate housing shall be mounted at the rear of the body.

Tail Lights

Three (3) Federal Signaltech 4" (100 mm) circular LED (Light Emitting Diode) or equivalent lights shall be installed each side at the rear of the apparatus.
Light functions shall be as follows:
LED red stop/tail light in upper position
LED amber turn signal middle position
LED clear back-up light in lower position.
The lights shall be in resilient shock absorbent mount for improved life.
The wiring connections shall be made with a weather resistant plug-in style connector.

Body Marker Lights

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

Lower Body:

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

Compartment Light Package

One (1) 12" ROM V3 or equivalent compartment light strip shall be mounted in each body compartment greater than 4 cu. ft.
Each light bar shall include sixteen (16) super bright white LEDs mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens.The lights shall be waterproof up to 1 meter (3.3 feet).
Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel. 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 EON LED (Light Emitting Diode) or equivalent with clear lenses. The wiring connections shall be made with a weather resistant plug in style connector.
One (1) light shall be supplied to illuminate the ground below each cab door. Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.
One (1) ground light shall be supplied under each side of the pump panel area (if equipped).
One (1) ground light shall be installed below each side body staircase (if equipped).
Three (3) ground lights shall be supplied under the rear of the apparatus.
Ground area lights shall be switched from the cab dash with the work light switch.

Cab Step Lights

The apparatus shall be equipped with four (4) lights located two (2) each side to properly illuminate the cab steps in accordance with current NFPA requirements. The lights shall be EON LED (Light Emitting Diode) or equivalent with clear lenses. The wiring connections shall be made with a weather resistant plug in style connector.
The step lights shall be controlled by the work light switch in cab that is accessible by the driver.

Hose Bed Light

A Truck-Lite round LED light model 81380 or equivalent shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The hose bed light shall be switched with the work light switch in the cab.

Crosslay Light

A Truck-Lite round LED light model 81380 or equivalent shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The crosslay light shall be switched with the work light switch in the cab.

Scene Lights

Six (6) Whelen 600 series Super LED scene lights or equivalent shall be provided. Each light shall have 12 Super LED diodes with internal light deflecting optics.
Lights shall be located as follows:

- One (1) each side of the tank up high offset forward
- One (1) each side of the tank up high offset rearward
- Two (2) at the rear of the apparatus up high

The lights shall be controlled in the cab by three switches accessible by the driver. The lights shall be wired as left side, right side and rear so they can be controlled individually.

Engine Compartment Light

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

Pump Panel Light Package

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. The lights shall be Tecniq EON or equivalent 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.

Pump Compartment Light

An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be a Tecniq EON or equivalent with polished stainless steel housing. The light shall be wired to the work light.

Back-Up Camera

A Safety Vision back-up camera model SV-625B-Kit or equivalent with a color monitor model SV-CLCD70BA or equivalent shall be installed. The monitor shall be installed on the front console area visible at night and in bright sunlight to the driver. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view with audio. The system shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator.

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 Module(s)

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

BIDDER COMPLIES | YES | NO

The apparatus body shall be painted Sikkens FLNA3024 Red or equivalent. 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 or equivalent 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 or equivalent - 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) or equivalent - 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) or equivalent - 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.

Painted Water Tank

The vertical exterior surfaces of the tank that shall be visible when the water tank is mounted shall be painted Akzo-Nobel FLNA3024 Red or equivalent. 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 upper horizontal surface and/or optional hosebed interior side and forward walls shall remain unpainted.

The water tank exterior shall have no mounted components mounted during the painting process to assure full coverage of exterior surfaces of the tank.
Paint process shall feature Akzo-Nobel's high solid LV products or equivalent and be performed in the following steps:
Corrosion Prevention - all raw materials shall be pre-treated with the Weather Jacket Corrosion Prevention system or equivalent to provide superior corrosion resistance and excellent adhesion of the top coat.
Akzo-Nobel Sealer/Primer LV or equivalent - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
Akzo-Nobel High Solid LV (Top coat) or equivalent - a lead-free, chromate-free high solid acrylic urethane top coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
Akzo-Nobel High Solid LV (Clear coat) or equivalent - 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 a mounting surface on the tank is penetrated, after painting, for the purpose of mounting steps, handrails, lights, or other specified components shall be treated at the point of penetration with a 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.

Striping

Reflective striping shall be provided and installed by the dealer/customer.

Rear Body Scotchlite Striping

Chevron style reflective striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" red/yellow alternating colors printed in an "A" pattern on reflective material meeting NFPA requirements. The striping shall be located on the rear body platework.

Standard 1 Year Warranty

Statement of Warranty
1-Year Standard
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.

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, 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 operators 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.