

Specifications for the

**Bidder
Complies**

Yes No

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The manufacturer shall provide loose equipment only when specified by the customer. The (NFPA) 1901, Standard for Automotive Fire Apparatus, unless otherwise specified as requested by the customer in these specifications, shall prevail.

The apparatus must meet all NFPA, DOT, ICC, AE, SAE, UL, TRA, FMVSS and local state Motor Vehicle Requirements.

It is required that the apparatus be manufactured to current NFPA edition standards, all NFPA equipment (LOOSE EQUIPMENT) not specified in the specifications will not be provided by the contractor.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction that have been in business and construction for a minimum of twenty-five (25) years.

The bidder of the apparatus herein specified; shall be wholly owned (100%) and managed by a Company, Corporation, and/or Parent Company that is wholly based, and permanently resides in the United States of America.

The Company, Corporation, and/or Parent Company and all assets belonging to such; shall be wholly owned and managed (100%) by the entities specified above.

The bidder shall state the location of the manufacturing facility where the apparatus is to be built and the location of the parent company if a subsidiary of a manufacturer.

The bidder shall provide satisfactory evidence of their ability to construct the apparatus specified in the bidders manufacturing facilities.

The bidder's representation shall state the length of time representing the manufacturer of specified apparatus.

Due to the severe service requirements the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

Due to the importance of keeping this vital piece of firefighting apparatus in service with a minimum of downtime, the manufacturer shall maintain a network of service centers with factory-training personnel.

The bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus being furnished under this contract which conform. Computer runoff sheets are not acceptable as "Contractor's Specifications". Item compliance shall be indicated in the "Yes/No" column of each item by all Bidders. Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare.

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

QUALITY AND WORKMANSHIP

The design of the Apparatus shall embody the latest approved automotive engineering practices.

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The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: Accessibility of the various units, which require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under "Performance tests and requirements".

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair, with apparatus bodies of bolt together design not being acceptable.

All steel welding shall follow American Welding Society requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow American Welding Society requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type of structure made from aluminum structural alloys. All sheet metal welding shall follow American Welding Society AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow American Society of Mechanical Engineers ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, American Welding Society AWS standards A5.20-E70T1.

DELIVERY

The bidder shall provide the number of calendar days from the date the bid is awarded to the delivery of the completed unit.

A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

To ensure proper break-in of all components while still under warranty, the apparatus shall be delivered under its own power. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall furnish a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

- The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.
- The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).
- The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.
- The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

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Yes No

- From a steady pace of 15 mph, the vehicle will accelerate to a true speed of 35 mph within 15 seconds. This will be accomplished without moving gear selector.
- The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.
- The contractor shall have the Underwriter’s Laboratories, LLC conduct the tests of the apparatus as in accordance with standard practices required by the Underwriter Laboratories, LLC (Guide for the Certification of Fire Department Pumper latest edition). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 latest revision shall prevail).
- The contractor shall furnish copies of the Pump Manufacturer’s Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer’s record of pumper construction details when delivered.
- All fluid levels and applicable pressures will be brought to proper levels and noted prior to final delivery.

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, a complete operation and maintenance manual covering the completed apparatus as delivered.

A Fire Apparatus Safety Guide published by Fire Apparatus Manufacturer's Association shall be provided with the apparatus upon delivery. This manual includes essential safety information for fire fighters, fire chiefs, apparatus mechanics, and fire department safety officers. The guide is applicable to municipal, wildland, and airport firefighting apparatus manufactured on either custom or commercial chassis.

A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used) and drive axle lubrication fluid.

The manufacture shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

A permanent plate in the driver's compartment shall be installed, specifying the seating capacity of the enclosed cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

A nameplate indicating the chassis transmission shift selector position to be used when pumping shall be provided in the driving compartment and located so that it can be easily read from the driver's position.

LIABILITY

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

GENERAL CONSTRUCTION

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Yes No

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the (NFPA) 1901, Standard for Automotive Fire Apparatus, documentation.

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by the operator without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus.

The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

EXCEPTIONS TO SPECIFICATIONS

The following specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that as specified and providing, they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list to refer to specification page number and paragraph.

Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Chassis, Body or Pump, will not be accepted.

Prototype units will not be acceptable. Apparatus shall be inspected upon completion for compliance with specifications.

Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications.

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Yes No

Failure to provide this information shall be cause to reject the proposal as being non-responsive.

Copied or run off sheets of these specifications shall be unacceptable, and the bid will be rejected no exceptions.

WARRANTY

Warranties applicable to the chassis and body (excluding vendor supplied components {engine, transmission, axles, etc.} which carry their own specific warranties) will be addressed by a single point warranty service provider approved by the manufacturer to perform service as necessary.

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

BID/PROPOSAL DRAWINGS

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

The drawings shall be large "D" size (minimum 24.00 inches x 36.00 inches).

Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable.

Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

PRE-CONSTRUCTION DRAWINGS

After the award of the bid, the contractor shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use during the pre-construction conference.

The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus.

In addition, a detailed engineering drawing of the pump operator's panel shall be provided prior to manufacturing for fire department approval.

FINITE ELEMENT ANALYSIS AND TESTING

Finite Element Analysis (FEA) shall be provided by the manufacturer.

Prototype bodies have been subjected to rigorous testing over varied terrains simulating different environmental conditions.

The purpose of such complex engineering methods of analysis shall be to ensure the longevity of the design by analyzing stress levels throughout the body and incorporating the structural supports wherever necessary.

There shall have been a minimum of three (3) different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus.

In addition to the FEA analysis, the core product design shall be strain gauged instrumental to ensure validation of FEA results and "Real World" drive/apparatus driving conditions.

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Analysis shall also have been conducted on the mounting system for the apparatus body and pump house. EXCEPTIONS TO THIS STATEMENT MAY BE CAUSE FOR IMMEDIATE REJECTION AND/OR BE CONSIDERED NON-COMPLIANT.

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) hard copies of apparatus manuals with all manufactured apparatus.

The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information the manufacturer can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, the manufacturer shall also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and maintenance of the general apparatus.

The manufacturer shall also supply a manufacturer's record of apparatus construction details, including the following information:

- Owner name and address
- Apparatus manufacturer, model, and serial number
- Chassis make, model, and serial number
- GAWR of front and rear axles
- Front tire size and total rated capacity in kilograms
- Rear tire size and total rated capacity in kilograms
- Chassis weight distribution in kilograms with water (if applicable) and manufacturer mounted equipment (front and rear)
- Engine make, model, serial number, rated horsepower, related speed and no load governed speed
- Type of fuel and fuel tank capacity
- Electrical system voltage and alternator output in amps
- Battery make and model, capacity in CCA
- Paint numbers
- Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose)
- Written load analysis and results of the electrical system performance tests
- Transmission make, model, and type
- Pump to drive through the transmission (yes or no)
- Engine to pump gear ratio and transmission gear ratio used
- Pump make and model, rated capacity in gallons per minute, serial number, and number of stages
- Pump manufacturer's certification of suction capability
- Pump manufacturer's certification of hydrostatic test
- Pump manufacturer's certification of inspection and test for the fire pump
- Copy of the apparatus manufacturer's approval for stationary pumping applications
- Pump transmission make, model and serial number
- Priming device type
- Type of pump pressure control system
- The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed
- Certification of the water tank capacity

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ELECTRICAL SCHEMATICS

The apparatus manufacturer shall supply one (1) set(s) as-built wiring schematics, to include all line voltage schematics with each apparatus.

WARNING AND INFORMATION LABELS

All warning and informational labels (non-vendor specific) shall be provided in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.

ON-LINE CUSTOMER INTERACTION

The manufacture shall provide the capability for online access through the manufacture's website. The customer shall be able to view digital photos of their apparatus in the specified phases of construction. The following phases will be captured and displayed on the manufacture's website:

- 1. Chassis when available at manufacturing facility
- 2. Body – Prior to Paint
- 3. Body – Painted
- 4. Pump and Plumbing
- 5. Assembly – 80% Complete

Due to the complex nature of fire apparatus and the importance of communication between the manufacture and customer, this line item is considered a critical requirement.

LIABILITY INSURANCE COVERAGE

In order to protect the department and its personnel, the bidder shall show proof that it has no less than \$10 million in liability insurance in force. A certificate of coverage shall be included in the bid package. Failure to carry liability insurance of at least this amount or failure to include proof of coverage shall be cause to reject the bidder's proposal.

GENERAL WARRANTY

The manufacturer shall provide a two (2) year warranty from the date of delivery.

In the case of a commercial chassis being used, the warranty on the chassis, engine, transmission, tires, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years from the date of delivery.

THIRD PARTY PUMP CERTIFICATION AND TESTING

The apparatus upon completion will be tested and certified by an independent third party testing company. The certification tests will follow the guide lines outlined in (NFPA) 1901, Standard for Automotive Fire Apparatus.

There shall be multiple tests performed by the contractor and the third party testing company when the apparatus

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	Yes	No
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has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery.

The fire pump shall be mounted on the apparatus and shall have a minimum rated capacity of 250 gpm (1000 L/min) at 150 psi (1000 kPa) net pump pressure.

Where the apparatus is designed for pump in-motion operations, the vehicle drive engine and drive train shall be arranged so that the pump can deliver at least 20 gpm (76 L/min) at a gauge pressure of 80 psi (550 kPa), while the fire apparatus is moving.

If the pumping system provided is rated at 3000 gpm (12,000 L/min) or less, the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

If the pumping system provided is rated at greater than 3000 gpm (12,000 L/min), the pump shall be capable of delivering the following:

- (1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure
- (2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure
- (3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus.

The tests shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be completely stamped with all information at the factory and attached to the vehicle prior to shipping.

Pumping Test:

The test site shall be adjacent to a supply of clear water at least 4 feet (1.2 m) deep, with the water level not more than 10 feet (3 m) below the center of the pump intake, and close enough to allow the suction strainer to be submerged at least 2 feet (0.6 m) below the surface of the water when connected to the pump by 20 feet (6 m) of suction hose.

Tests shall be performed when conditions are as follows:

- (1) Air temperature: 0 degrees Fahrenheit to 110 degrees Fahrenheit (-18 degrees Celsius to 43 degrees Celsius)
- (2) Water temperature: 35 degrees Fahrenheit to 90 degrees Fahrenheit (2 degrees Celsius to 32 degrees Celsius)
- (3) Barometric pressure: 29 inches Hg (98.2 kPa), minimum (corrected to sea level)

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Engine-driven accessories shall not be functionally disconnected or rendered inoperative during the tests.

The following devices shall be permitted to be turned off or not operating during the pump test:

- (1) Aerial hydraulic pump
- (2) Foam pump
- (3) Hydraulically driven equipment (other than hydraulically driven line voltage generator)
- (4) Winch
- (5) Windshield wipers
- (6) Four-way hazard flashers
- (7) Compressed air foam system (CAFS) compressor

All structural enclosures, such as floorboards, gratings, grilles, and heat shields, not provided with a means for opening them in service shall be kept in place during the tests.

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, and shall be at least size 3 1/2 per ASMEB40.100. The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge, or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge. The discharge pressure gauge shall have a gauge pressure range of 0 psi to 400 psi (0 kPa to 2800 kPa). All pilot gauges shall have a gauge pressure range of at least 0 psi to 160 psi (0 kPa to 1100 kPa). All gauges shall be calibrated in the month preceding the tests using a dead-weight gauge tester or a master gauge meeting the requirements for Grade 3A or 4A gauges, as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, that has been calibrated within the preceding year.

The engine speed-measuring equipment shall consist of a nonadjustable tachometer supplied from the engine or transmission electronics, a revolution counter on a checking shaft outlet and a stopwatch, or other engine speed-measuring means that is accurate to within ± 50 rpm of actual speed.

If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at 100 psi (700 kPa) net pump pressure, followed by 1/2 hour of continuous pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure and 1/2 hour of continuous pumping at 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at less than 750 gpm (3000 L/min), the pump shall be subjected to a 50-minute pumping test from draft consisting of 30 minutes of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 10 minutes of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 10 minutes of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 30-minute test at rated capacity, unless it becomes necessary to clean the suction strainer.

Pumping Engine Overload Test:

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If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

The capacity, discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

Pressure Control System Test:

If the pump is rated at 3000 gpm (12,000 L/min) or less, the pressure control system on the pump shall be tested as follows:

- (1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).
- (2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa) ±5 percent.
- (3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.
- (6) The discharge pressure gauge shall be reduced to 90 psi (620 kPa) by throttling the engine fuel supply, with no change to the discharge valve settings, hose, or nozzles.
- (7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa) ±5 percent.
- (8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).
- (11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa) ±5 percent.
- (12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

If the pump is rated at greater than 3000 gpm (12,000 L/min), the pressure control system on the pump shall be tested as follows:

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- (1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).
- (2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa) ±5 percent.
- (3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.
- (5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.
- (6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).
- (7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa) ±5 percent.
- (8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.
- (9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

Priming System Tests:

With the apparatus set up for the pumping test, the primer shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water. This test shall be permitted to be performed in connection with priming the pump for the pumping test.

The interval from the time the primer is started until the time the pump is discharging water shall be noted. The time required to prime the pump shall not exceed 30 seconds if the rated capacity is 1250 gpm (5000 L/min) or less. The time required to prime the pump shall not exceed 45 seconds if the rated capacity is 1500 gpm (6000 L/min) or more.

An additional 15 seconds shall be permitted in order to meet the requirements of 16.13.5.3 and 16.13.5.4 when the pump system includes an auxiliary 4 inches (100 mm) or larger intake pipe having a volume of 1 foot³ (0.30 m³) or more.

Vacuum Test:

The vacuum test shall consist of subjecting the interior of the pump, with all intake valves open, capped or plugged, and all discharge caps removed, to a vacuum of 22 inches/Hg (75 kPa) by means of the pump priming system.

At altitudes above 2000 feet (600 m), the vacuum attained shall be permitted to be less than 22 inches/Hg (75 kPa) by 1 inch/Hg (3.4 kPa) for each 1000 feet (305 m) of altitude above 2000 feet (610 m).

The vacuum shall not drop more than 10 inches/Hg (34 kPa) in 5 minutes.

The primer shall not be used after the 5 minute test period has begun and the engine shall not be operated at any speed greater than the governed speed during this test.

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Water Tank-to-Pump Flow Test:

A water tank-to-pump flow test shall be conducted as follows:

- (1) The water tank shall be filled until it overflows.
- (2) All intakes to the pump shall be closed.
- (3) The tank fill line and bypass cooling line shall be closed.
- (4) Hose lines and nozzles for discharging water at the rated tank-to-pump flow rate shall be connected to one or more discharge outlets.
- (5) The tank-to-pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.
- (6) The engine throttle shall be adjusted until the required flow rate $-0/+5$ percent is established.
- (7) The discharge pressure shall be recorded.
- (8) The discharge valves shall be closed, and the water tank refilled.
- (9) The bypass line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.
- (10) The discharge valves shall be reopened fully, and the time noted.
- (11) If necessary, the engine throttle shall be adjusted to maintain the discharge pressure recorded as noted in 16.13.7.1(7).
- (12) When the discharge pressure drops by 10 psi (70 kPa) or more, the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

Volume Discharge Calculation:

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 10 psi (70 kPa).

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

The rated tank-to-pump flow rate shall be maintained until 80 percent of the rated capacity of the tank has been discharge.

Engine Speed Advancement Interlock Test

The engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

Specifications for the

**Bidder
Complies**

Yes No

(6) The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.

(7) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

If the apparatus is equipped with a stationary pump driven through a transmission mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
- The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" position.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-in-motion, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

- The chassis transmission is in neutral, the parking brake is on, and the pump shift status in the driving compartment is disengaged.
- The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" or the "OK to Pump In-Motion" position.

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.
- The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

LOW-VOLTAGE ELECTRICAL SYSTEM PERFORMANCE TESTING

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0 degrees Fahrenheit and 110 degrees Fahrenheit (-18 degrees Celsius and 43 degrees Celsius). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

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 10 minutes.

Specifications for the

**Bidder
Complies**

Yes No

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 failure of the battery system.

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.

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 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system or 23.6 V dc for a 24 V nominal system, for more than 120 seconds, shall be considered a test failure.

Low Voltage Alarm Test:

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine 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.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.70V for a 12 V nominal system or 23.4 V for a 24 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

FACTORY PRE-CONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a pre-construction conference at the manufacturing facility with a factory representative present and with One (1) individual(s) from the NEFEA to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection conference at the site of the manufacturing facility with One (1) individuals from the NEFEA to inspect the

Specifications for the

**Bidder
Complies**

Yes No

apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

The successful bidder will provide all travel from XX airport, lodging one (1) person per room and meals for three (3) department personnel.

DIMENSIONAL REQUIREMENTS

To protect the interests of the taxpayers and the **XX** Fire Department, the successful bidder shall be responsible to ensure that the apparatus will fit in the existing **XX** Fire Department Station bay. Fit will be assured prior to acceptance of and payment for the apparatus. **(ABSOLUTELY NO EXCEPTIONS)**

SERVICE CENTER

The dealership supplying the apparatus must maintain a full service, repair and warranty center. The service center must be owned and operated by the dealership, which must be an established business entity. Third party service or repair services shall not be allowed. Furthermore, the dealership's service center and office must be located in a commercial business district, neither the office or service center may be located in a residential district, No Exception. **This is complicated apparatus and the only one the Town of XX owns of this type, these requirements have been set to insure minimal out of service time. These requirements are set forth to assure competent 24-hr. service can be provided without interruption. (THERE SHALL BE NO EXCEPTIONS TO THE SERVICE REQUIREMENTS)**

THE LOCAL DEALERSHIP SHALL HAVE THE FOLLOWING WITHOUT EXCEPTION:

- 1) Full Fire Apparatus CAD system for fire apparatus.
- 2) Minimum of Twenty (20) years of continuous ownership and management.
- 3) Certified in-house pump mechanics for the following pump:
 - Hale
 - Waterous
- 4) International air terminal within five (5) miles for receipt of air shipments of service parts.
- 5) Certified in-house mechanics the following areas:
 - EVT – Master Mechanic
 - EVT – Fire pumps and accessories
 - EVT – Aerial fire apparatus
 - REYCO – Spring maintenance and repair/replacement
 - CLASS 1 – Multiplexed electrical systems
 - GENERATOR - Harrison
 - AIR COMPRESSOR SERVICE
 - American Bristol
 - Mako
 - DETROIT DIESEL
 - Engine tune up
 - DDEC III & IV
- 6) Certified warranty center for the chassis being supplied. (Must supply documentation from chassis builder)
- 7) Four (4), Mobile service unit –fully stocked with tools & parts. (Must supply photographic proof)
- 8) 15,000sqft of heated indoor storage/repair area. (Must supply aerial photographic proof, no exception)
- 9) MIG & TIG welder and cutting torches.
- 10) PPG certified service center.
- 11) Digital camera for repair photographs.
- 12) Capability of servicing several large fire apparatuses (aerials, tankers and pumpers) simultaneously indoors with cabs fully tilted and aerial devices removed from their beds.

Specifications for the

**Bidder
Complies**

Yes No

- 13) Plasma cutter.
- 14) Factory certified in-house aerial mechanics with **CERTIFICATION FROM OEM OF AERIAL DEVICE.**
- 15) 24-hour emergency onsite service at our fire house.
- 16) On site service, preventative maintenance and warranty repairs. The apparatus shall not be driven back and forth to the apparatus dealership for warranty & service work.
- 17) A Laptop computer & Pro-Link 9000 diesel engine reader and analytical device. An onsite print-out device with the following cartridges:
 - DDEC motors
 - ATEC application
 - MERITOR ABS braking system
 - CUMMINS motors
- 18) Harrison generator warranty/ service center.
- 19) Vogel lubrication refill pumps – in service center and on mobile service units.
- 20) Hydraulic hose coupling system with fittings and hose in house.
- 21) V-Mux Multiplexed USB downloader.
- 22) Metal Shear capable of cutting a 12’ long piece of metal. (Must supply photographic proof)

- 23) Service center must have the ability to lift a minimum of 120,000# and support three (3) axels. (Must supply photographic proof)
- 24) Synthetic grease system.
- 25) Robinair 34788-NP A/C recovery and recharge; fully automatic system.
- 26) Fifty-eight foot Cross/Down State Of The Art future cure paint booth.

THERE SHALL BE NO EXCEPTIONS TO THE SERVICE CENTER REQUIREMENTS.

ALL BIDDERS SHALL PROVIDE PHOTOGRAPHIC DOCUMENTATION OF THE FOLLOWING:

- 1. Service center
- 2. Mobile service trucks

(NO EXCEPTIONS)

NEW DEALER LICENSE

All bidders shall supply copy with the bid their DMV license to sell new vehicles for their state of incorporation. Used dealer, general repairer or limited repairer licenses ARE NOT ACCEPTABLE. The **XX** Fire Department is buying a new vehicle and requires that any dealer selling the apparatus be a licensed and bonded New Vehicle Dealer. The department requires this license so that Lemon Law for new vehicles can be enforced. Furthermore, the department wishes to avoid split responsibility with warranty and service repairs on the vehicle and requires that any firm supplying the new apparatus have a proper license per XX State Statues to repair motor vehicles. The department requires that the firm selling the apparatus be responsible for all service and warranty repairs for the vehicle. Third party service centers are not acceptable.

Please input your dealer number here so the **XX** Fire Department can do a quick check in the DMV database

_____.

Signature of person attesting to the above statement _____.

Typed name of person signing this document _____.

MOBILE SERVICE

Specifications for the

**Bidder
Complies**

Yes No

It is the intent of the **XX** Fire Department to inspect each bidder's service center, personnel and mobile service units. Service of this vehicle is of the utmost importance to the purchaser. It is completely **unacceptable** for any bidder not to have mobile service units, in house personnel or a service center. Third party service is **NOT ACCEPTABLE, NO EXCEPTION.**

To insure that each bidder has in-house mobile service units and onsite service personnel, the **XX** Fire Department will conduct the following inspection:

- *Each bidder shall bring their mobile service units to our firehouse for inspection.*
- *The apparatus must be brought to our firehouse by a fulltime mechanic employed by the local dealership supplying the apparatus.*
- *The mobile service unit shall bring its registration or title showing the name of apparatus dealership as the owner.*
- *In addition, the personnel attending shall bring a copy of the local dealerships workmen's compensation and garage liability policies in **THEIR** name for our inspection.*

REFERENCE LIST

All bidders shall supply a list of surrounding cities in which their pumpers are located. No bids shall be accepted from any contractor who cannot show they have done at least 100 similar type units. (**WITHIN New England NO EXCEPTIONS**)

TAG ON ORDERS

The purchaser reserves the right to require tag on purchases to this order for up to one (1) year from signing contract. The contract may be used for neighboring communities as well, as long as it is legally permissible for the neighboring community to avail themselves of this opportunity.

EQUIPMENT MOUNTING

All equipment shall be mounted on this apparatus by the dealership prior to delivery. The cost of this equipment mounting shall be included in the bid price. This includes **XX** Fire Department supplied equipment. Cost of additional brackets, and electrical wiring labor and materials is not covered under this requirement.

ELECTRICAL SYSTEM

The electrical system must be produced with commonly used components. Proprietary systems will not be accepted.

DELIVERY

The apparatus shall be driven from the final stage manufacturer to the **XX** Fire Department in order to provide a "test run" of the completed apparatus. To ensure that the intended "test run" is accomplished, this distance shall not be less than 1,500 miles. (**NO EXCEPTIONS**)

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall length.

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall height.

MAXIMUM OVERALL WIDTH OF ONE HUNDRED (100) INCHES

Specifications for the

**Bidder
Complies**

Yes No

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of One Hundred (100.00) inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripheral items shall not be incorporated into this measurement.

The items included, but not limited to, are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Cab Steps, Overlays, Etc.

MAXIMUM WHEELBASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheelbase.

ALTITUDE PERFORMANCE REQUIREMENT

The apparatus specified shall be constructed with no altitude performance restrictions.

== Tanker Elliptical - Chassis - 10.240 10/03/22 ==

CHASSIS CAB STEP OVERLAYS

The two (2) door chassis cab steps shall be replaced or enhanced with bright aluminum diamond plate overlays. The fuel tank(s), battery box(s), and other equipment located directly under the cab doors shall be covered by an overlay to provide a pleasing appearance.

Access will be provided to OEM components based on the make and model of chassis. Where applicable by design; this may include the upper stepping area to be fully hinged across the bottom edge, permitting the entire stepping area to drop-down and provide complete access to the fuel fill and DEF fill locations. The upper stepping area shall be secured with positive lock latches to securely hold the step in place when closed.

A door shall be provided for ease of access to the fuel fill and DEF fill locations. The door shall be of a drop-down hinge style secured with up to two (2) push-button latches.

DRIVE LINE MODIFICATION

The chassis drive line shall be modified from the chassis manufactures original status to accommodate any changes required by the apparatus manufacturer, including wheelbase, pump installation, or otherwise.

HORIZONTAL EXHAUST

The chassis shall have a horizontal exhaust system plumbed to the side of the apparatus body just ahead of the rear wheels.

EXHAUST HEAT SHIELD

There shall be an exhaust heat shield added to the chassis provided exhaust. The shield shall terminate past the front compartment and shall incorporate a heavy duty spray on insulation under R1. With this shield, the temperature of the front compartment shall not exceed the ambient temperature.

The heat shield shall be attached to the underside of the body utilizing a flexible bracket.

AUTO THROTTLE

Specifications for the

**Bidder
Complies**

Yes No

Engine will increase in RPM to a preset amount if the battery voltage drops below 11.7V and the pump is not engaged, or transmission placed in drive gear.

HAZARD LIGHT IN CAB

There shall be a LED "Door Open" indicator light, with audible alarm, provided and installed in the chassis cab. The light shall be installed on the cab dash between the driver and officer (providing space availability) and shall activate when the parking brake is released and a compartment door or any additional specified accessible devices are not in the completely closed positions.

A warning placard shall be installed in the apparatus cab near the light, stating "Do Not Move Apparatus When Light Is On."

DELUXE CONSOLE WITH BINDER STORAGE

The deluxe electrical control center console shall be fabricated of .125 inch smooth aluminum and designed to fit the chassis configuration. The base of the console shall be custom trim-fit to the chassis floor line and be securely fastened.

The front of the console shall have two (2) individually partitioned angled storage areas to hold 3-ring binders, maps or manuals.

The top of the console shall be formed with a 1.00 inch lip bent up around its perimeter. The top shall be fastened to the base with threaded fasteners for ease of removal and access to the electrical hardware contained within.

This area shall serve as the main electrical distribution point for all chassis related functions and contain the majority of the hardware related to these functions.

ROCKER SWITCH PANEL

All specified lighting fixtures and electrical components shall be activated by Carling V-series rocker style switches. The switches shall be located on a separate embossed electrical panel, fabricated with aluminum complete with backlit name tags describing the function of each individual switch and installed on the console specified.

An internally lighted red rocker switch shall be furnished on the left and identified as the "MASTER WARNING".

CONSOLE FINISH

The console shall be a painted finish/color equivalent to the chassis interior unless specified otherwise.

BATTERY CHARGER

A Kussmaul Electronics Auto Charge 12 HO DV 20 amp (12 volt) battery charger shall be provided and installed in the cab in the "best fit" location as determined by the apparatus manufacture.

The battery charger shall automatically regulate operation output to a single battery bank. A built in sensing circuit shall check the battery voltage 120 times per second, to compensate for voltage drop in charging wires and provide quick recharge, with no overcharge.

BATTERY CONDITIONER DISPLAY

Specifications for the

**Bidder
Complies**

Yes No

A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be installed under the driver's door step area and placed forward of the immediate stepping area where space allows.

SHORELINE RECEPTACLE W/AUTO EJECT

A Kussmaul "Super Auto-Eject" 120 volt 20 amp shoreline receptacle shall be installed on the apparatus. It shall automatically eject the plug when the starter button is depressed.

The electrical current shall be interrupted before the plug is automatically ejected to prevent arcing. The plug for the receptacle shall be shipped loose for installation on the shoreline cord.

RECEPTACLE LOCATION

The shoreline connection shall be installed under the driver's door step area and placed forward of the immediate stepping area where space allows.

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery charger.

RECEPTACLE COVER COLOR

The inlet connection shall include a red cover.

AIR SHORELINE

A Kussmaul Electronics model #091-28 Air Eject shall be provided and installed on the apparatus. The air eject shall accept standard air hose adapters to maintain air pressure on the apparatus brake system when in station.

The air eject shall disconnect and eject the airline automatically when the engine is started, preventing hazardous and damaging drive-off conditions with the hose connected.

A weather resistant kit model #091-28AK shall be provided to protect the unit from damage during automatic release.

Input: 12 Vdc
Pressure Rating Max 140 PSI MAX (9.7 bar)
Warranty 2 Year

RECEPTACLE COVER COLOR

The inlet connection shall include a red cover.

AIR INLET LOCATION

The air inlet shall be installed under the driver's door step area at the lower step level and placed forward of the immediate stepping area if space allows.

SIREN CONTROL HEAD

One (1) Whelen electronic siren, model #295SLSA1 shall be provided and mounted in the switch panel.

The siren shall be 100-200 watts and feature wail, yelp, phaser, air horn and manual wail. The microphone shall have noise canceling circuitry and Public Address override.

Specifications for the

**Bidder
Complies**

Yes No

The siren and hard wired microphone shall be installed within reach of the driver and officer.

SIREN SPEAKER

A Whelen model #SA315P 100 watt siren speaker shall be provided. The speaker shall measure 6.50 inches (150mm) tall by 6.50 inches (150mm) wide by 2.9 inches (73mm) deep.

ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face on the right side outboard of the frame rail in the far outboard position.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Signal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet.

The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps.

The siren shall measure 10.50 inches wide by 10.00 inches high by 14.00 inches deep. The siren shall include mounting hardware designed to recess mount.

SIREN LOCATION

The siren shall be recess mounted on the left side of the front fascia of the bumper approximately in the center of the flat surface between the bumper radius and the frame rail.

MECHANICAL SIREN ACCESSORIES

The siren shall be recess mounted into a polished aluminum housing in the front bumper face for aesthetics or provide the necessary clearance without a bumper extension specified.

SIREN ACTIVATION

The mechanical siren shall be actuated by two (2) Linemaster model SP491 foot switches mounted in the front section of the cab for use by the driver and officer. A momentary siren brake rocker switch shall be provided in the switch panel on the dash.

The foot switches shall be labeled "SIREN".

The siren shall only be active when the master warning switch is on to prevent accidental engagement.

PRESSURE PROTECTION VALVE

There shall be a pressure protection valve installed to prevent the use of air horns or other air operated accessories when the system air pressure drops below 80 PSI (5.5 bar).

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided.

They shall be visible from each seating position.

Specifications for the

**Bidder
Complies**

Yes No

There shall be a lubrication plate mounted inside the cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

- Engine oil
- Engine Coolant
- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (where applicable)
- Tire Pressures

Where applicable, style/brand of labels to match call out in plumbing section

APPARATUS INFORMATION LABEL

There shall be a high-visibility label installed in a location clearly detectable to the driver while in the seated position.

The label shall indicate the following specified information.

- Overall Height (feet and inches)
- Overall Length (feet and inches)
- Overall GVWR (tons or metric tons)

CAB HELMET WARNING LABEL

There shall be a high-visibility label installed in a location clearly detectable from each seating position.

The label shall indicate the following specified information.

“DO NOT WEAR HELMET WHILE SEATED”

TIRE PRESSURE MONITORING SYSTEM

There shall be RealWheels LED AirGuard Set and Go LED indicators (Model RWT1236) provided for each wheel of the apparatus. The tire pressure monitoring system shall indicate if there is improper air pressure in the tire.

The inner tire on the rear dual axle(s) shall have an extension provided that will pass through the outside rim and attach to the stabilizer providing an unobstructed view for inspection of the inner tire air pressure.

The indicators shall be installed by the department after the unit has been fully equipped and the tires set to the manufactures recommended pressure rating. The indicators will calibrate to that initial air pressure setting upon installation and will intermittently flash when the tire pressure is reduced by 5 to 10 psi from its original calibrated pressure.

RETRO-REFLECTIVE STRIPING

Retro-reflective striping shall be added to the inside of the cab doors in accordance with NFPA requirements.

VEHICLE DATA RECORDER (VDR)

Specifications for the

**Bidder
Complies**

Yes No

A Weldon, Model number 6444-0000-00, Vehicle Data Recorder which collects and stores essential vehicle data shall be provided. Reviewing the information is made easy with an intuitive computer application.

The following features shall be included:

Recorded Data Includes: Vehicle Speed, Acceleration, Deceleration, Engine Speed, Engine Throttle Position, ABS Event, Seat Occupied Status, Seat Belt Status, Master Optical Warning Switch, Park Brake, Service Brake, Time, Date and Engine Hours.
Password Protected by the customer
Six (6) seat position inputs for occupied and belts buckled. Additional six (6) seat expansion module available (#6020-0000-00)
Easily interfaces with traditional wiring, V-MUX™ or other multiplexing systems
Data is extracted by a 05023100 standard, mini USB cable
Use in conjunction with the Occupant Restraint Indicator or V-MUX™ multiplex system

Occupant Restraint Indicator

An Occupant Restraint Indicator, model number 6204-0000-00 shall be provided. Designed to alert driver and officer, this module will indicate where restraints of occupied seats are properly fastened keeping personnel safe.

The following features shall be included:

Low profile, compact size
Supports commercial and custom cab seating layouts; up to 12 seats
Dimming feature adjusts indicator intensity to synchronize with dash lights
Built-in audible alarm
Standard 4 year warranty

COMMERCIAL CAB FACTORY FINISH

The chassis cab shall have a factory finish.

HEAT EXCHANGER

There shall be a supplementary heat exchanger cooling system installed for use of water from the discharge side of the fire pump through the engine compartment, without intermixing, for absorption of excess heat.

The heat exchanger shall be adequately sized to maintain manufactures recommended temperature of engine coolant under all pumping conditions. Appropriate drains shall be provided to prevent damage from freezing. A valve control shall be supplied at the pump operator's position to open or close the heat exchanger systems plumbing.

ENGINE COMPARTMENT LIGHT

There shall be one (1) 12 volt work light, Weldon LED light model #2631-0000-30, installed in the engine compartment. The light shall have an on/off switch.

CAB PERIMETER LIGHTS

There shall be two (2) perimeter lights installed under the apparatus cab steps, one (1) each side. The lights shall be positioned to provide illumination to the ground area under the cab entry doors.

The lights shall be TecNiq model T44 series, 4" round, 8 diode LED lights.

Specifications for the

**Bidder
Complies**

Yes No

CAB PERIMETER LIGHTS ACTIVATION

The perimeter lights under the cab entry steps shall be activated by the opening of any cab door and with a switch in the cab.

CAB FIRE EXTINGUISHER

There shall be one (1) 2.5 lb. Amerex ABC Extinguisher provided and shipped loose in the chassis cab.

HELMET RESTRAINTS

All NFPA required helmet restraints will be supplied and installed by the Dealership prior to the truck being placed into service.

MUD FLAPS

Heavy-duty black rubber mud flaps with manufactures logo shall be provided behind the rear wheels. The mud flaps shall be bolted in place.

WHEEL COVERS

There shall be chrome plated lug nut covers and hub caps installed on the front and rear wheels. "Baby Moon" hub covers shall be provided for the rear wheels.

== Tanker Elliptical - Pump Control - 10.240 10/03/22 ==

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that are encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

There shall be a trim panel will be installed between the pump compartment and the cab. The materials used will be made made of the same materials used for the pump house overlay.

VIBRA-TORQ™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it "floats" above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The pump module substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each pump compartment mount bracket shall be mounted to the side chassis frame flange with two 5/8"-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to

Specifications for the

**Bidder
Complies**

Yes No

carry the necessary loads of the pump module, apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All pump module to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures. The Vibra-Torq™ mounting system shall have a lifetime warranty.

PUMP COMPARTMENT WORK LIGHT

One (1) Weldon LED work light model #2631-0000-30 shall be installed in the pump compartment module to illuminate the piping and plumbing components.

The light shall be activated by a weather resistant toggle switch installed inside the pump compartment.

LEFT SIDE OPERATORS PANEL & PUMP PANEL

The pump operator's panel shall be located on the left side of the apparatus pump compartment. The panel shall be split into an upper and lower section.

The material of the operator's panel shall match that of the overlays and right side panels specified.

The upper panel shall house gauges and controls and be hinged to allow easy access to components. The door shall have a stainless steel hinge, dual point chrome push button latches and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The lower panel on the left side shall be a removable panel attached with mechanical fasteners.

Valve controls shall be immediately adjacent to its respective gauge. The valve controls shall be properly labeled, and color coded for ease of use. All markings shall be permanent in nature.

OPEN DOOR WARNING

If the hinged panel is not properly closed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

VALVE CONTROL - T-HANDLE PULL ASSEMBLY

Unless specified otherwise, the discharge valves shall be controlled from an Innovative Controls side mount valve control assembly. The ergonomically designed handle shall be chrome-plated with recessed areas for name plate and color code. A .75 inch (19.5 mm) diameter hardcoat anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated panel-mounting bezel. The valve operating mechanism will indicate the position of the valve at all times.

PUMP PANEL LIGHTS

There shall be adequate illumination provided at the side pump panels with the installation of two (2) brushed

Specifications for the

**Bidder
Complies**

Yes No

stainless steel shielded light assemblies, one (1) on the left and one (1) on the right side pump compartment.

Each shield shall contain the maximum number of lights permitted in the space available for 9.00 inch (21cm) LED Tube lights model #RX-15T16-5050-21CM.

There shall also be one directional light Weldon style 9186-23882 Surface Mount series installed to add illumination at the lower pump panel.

PUMP PANEL LIGHT ACTIVATION

One (1) pump panel light at the operator's panel shall be illuminated at the time the pump is ready to pump and it is "OK TO PUMP". The Pump shift has been completed and the chassis automatic transmission is engaged.

The remaining lights shall be controlled by a switch located on the side operator's panel.

PUMP COMPARTMENT SERVICE ACCESS

The front portion of the pump compartment structure (directly behind the chassis cab) shall not be overlaid. The outer edges of the pump compartment shall be overlaid with aluminum diamond plate for a pleasing appearance.

PUMP COMPARTMENT WIDTH

The width of the pump compartment (front to back) shall be 44.00 inches (1.12 m).

RIGHT SIDE PUMP PANELS STYLE

There shall be two (2) pump panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be accessible by a quick-release mechanical type latch, closing against a door seal. Both panels shall be easily removed for access to the pump for serviceability.

RIGHT & LEFT SIDE BLACK SUPERLINER FINISHING FOR PANELS AND OVERLAYS

The panels for the pump compartment on the left and right side shall be made from aluminum and finish coated with black Superliner.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and shall be made of aluminum and finish coated with black Superliner.

The Superliner shall be applied in a method to produce the smoothest finish possible. Stainless steel or laminated vinyl surfaces will not be considered.

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework. The tubular frame supports all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface where applicable.

EMBOSSSED ALUMINUM DIAMOND PLATE OVERLAYS

Specifications for the

**Bidder
Complies**

Yes No

The side running boards shall have a .188 inch (4.76 mm) embossed aluminum diamond plate overlays installed. The stepping areas shall be as large as possible, overlapping the perimeter of the running board structure.

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss series PBA400-A00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8" wide by 1 1/2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring. Inputs to the control module from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on a dot matrix message display
- Throttle ready LED.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor and monitoring pressure display shall be programmed to interface with a specific engine.

INTAKE PRESSURE RELIEF VALVE

Specifications for the

**Bidder
Complies**

Yes No

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with easy to read 90, 125, 150, 200, 250, 300 psi settings and an "OFF" position. Pressure adjustment can be made utilizing a ¼" hex key, 9/16" socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet (NFPA) 1901, Standard for Automotive Fire Apparatus, requirements for pump inlet relief valves. The unit shall be covered by a five year warranty. The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure, unless otherwise shop noted. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

PRESSURE GOVERNOR and MONITORING DISPLAY BUZZER

Fire Research PumpBoss -Z1 option for an audible alarm buzzer shall be installed. The buzzer shall sound when a signal from the PumpBoss activates it.

MASTER GAUGES

Thuemling 4.50 inch (115 mm) gauges shall be supplied for the master intake and master discharge gauges.

The gauges shall be model FA-LFP-410.

GAUGE SCALE

The master intake gauge shall be marked for a reading from -30 to 400 PSI and the master discharge shall be marked for reading a discharge pressure of 0 to 400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump.

Each port shall have 0.25 inch (6.35 mm) standard pipe thread connection and be manufactured of non-corrosive polished stainless steel or brass plugs.

TANK LEVEL GAUGE

An Innovative Controls SL Series Tank Level Monitor System shall be installed. The system shall include an electronic display module, a pressure transducer-based sender unit, and an extension cable. The display module shall show the volume of water in the tank using 14 super bright easy-to-see LEDs. Tank level indication is enhanced by the use of green LEDs at the full level, amber LEDs at the ¾, ½ and ¼ tank levels, and red LEDs at the empty level. Wide-angle diffusion lenses in front of the LEDs create a 180 degree viewing angle. The electronic display module shall be waterproof and shock resistant being encapsulated in a urethane-based potting compound. The potted display module shall be mounted to a chrome plated panel-mount bezel with a durable easy-to-read polycarbonate insert featuring blue graphics and a water icon.

Specifications for the

**Bidder
Complies**

Yes No

All programming functions shall be accessed and performed from the front of the display module. The programming includes manual or self-calibration and networking capabilities to connect remote slave displays. Low tank level warnings shall include flashing red LEDs starting below the ¼ level, down-chasing LEDs when the tank is almost empty.

The display module shall receive an input signal from a pressure transducer. This stainless steel sender unit shall be installed on the outside of the water tank near the bottom. All wiring, cables and connectors shall be waterproof without the need for sealing grease.

CAB MOUNTED WATER TANK INDICATOR

One (1) Innovative Controls SL Series 5 LED mini water level gauge shall be provided and installed in the cab visible to the driver. The gauge shall be a small readout, consisting of five (5) lights.

TANK LEVEL GAUGE LOCATION

The tank level readouts shall be located on center dash panel.

AUXILIARY WATER LEVEL GAUGE

IC SL PLUS MONSTER TANK LEVEL GAUGE

There shall be one (1) Innovative Controls SL Plus Monster Strip Light provided. The monster light shall have 64 super-bright LEDs in 4 discrete groupings of 16 LEDs per color. These colored LED groupings shall mimic the functionality of the master display.

The Monster water level gauges will be installed in a horizontal position, one (1) each at the forward upper corners.

TANK LEVEL GAUGE LOCATION

One (1) tank level readout shall be located at the rear of the vehicle, to the left side.

ADDITIONAL WATER LEVEL GAUGE

IC SL PLUS MONSTER TANK LEVEL GAUGE

Innovative Controls SL Plus Monster Strip Light shall be installed. The monster light shall have 64 super-bright LEDs in 4 discrete groupings of 16 LEDs per color. These colored LED groupings shall mimic the functionality of the master display.

The Monster water level gauges will be installed horizontal position, one (1) each at the forward upper corners.

TANK LEVEL GAUGE LOCATION

The tank level readouts shall be located on the apparatus body, one (1) each at the forward upper corners.

AIR HORN BUTTON

There shall be an air horn activation red push button provided and installed on the pump operator's gauge panel. The air horn button shall be of weather resistance type and labeled "AIR HORN".

PUMP COMPARTMENT TOP OVERLAY

Specifications for the

**Bidder
Complies**

Yes No

The top cap of the pump compartment shall be overlaid with materials of a non-slip .125 inch (3.18 mm) embossed aluminum diamond plate.

DUNNAGE AREA

A single wall .125 inch (3.18 mm) aluminum diamond plate dunnage area shall be provided above the pump house compartment for equipment mounting and storage space.

The dunnage area shall be as wide as possible from side to side, and as deep as allowed with the available space.

== Tanker Elliptical - Plumbing - 10.240 10/03/22 ==

MIDSHIP PUMP

The pump shall have a capacity of 1500 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CSU, single stage midship pump.

The pumps impellers shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame plated hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Pump casing shall be close grained gray iron, bronze fitted and horizontally split in two sections for easy removal of entire impeller assembly, including wear rings, without disturbing setting of pump in chassis or pump piping. The pump, for ease and rapid servicing in the future, shall have the separable impeller shaft which allows true separation of transmission or pump without disassembly or disturbing the other component. This shall be accomplished by using a two piece shaft. This feature will allow field service to accomplish in much less time since each component (pump or transmission) can be repaired independently. The impeller shaft shall be stainless steel, accurately ground to size and polished. Shaft shall be supported at each end by ball type oil grease lubricated bearings. Sleeve bearings or bushings will not be acceptable. The bearings shall be protected from water at each end of the impeller shaft.

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3.50 inch openings for ultimate flexibility in providing various discharge outlets for maximum efficiency and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

The entire pump shall be cast, manufactured and tested at the pump manufacturer's factory. The pump transmission housing shall be high strength aluminum, three pieces and horizontally split. Power transfer to the pump shall be through a Morse Hy-Vo drive chain. Chain shall be pressure lubricated through oil pump. Chain sprockets shall be cut from carbonized, hardened alloy steel. Spur gears will not be acceptable.

The drive shafts shall be 2.35 inches in diameter, made of hardened and ground alloy steel. All shafts shall be ball bearing supported. Case shall be designed to eliminate the need of water cooling.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. A certificate documenting this test shall be provided with the completed apparatus. The pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the latest (NFPA) 1901, Standard for Automotive Fire Apparatus. Pump shall be free from objectionable pulsation and vibration.

The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated

Specifications for the

**Bidder
Complies**

Yes No

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.

PUMP WARRANTY

Waterous Co shall provide a limited manufacturer's pump warranty to be free from defects, under normal use and service, for a period of seven (7) years from the date placed into service.

PUMP SEALS

Stuffing boxes shall be integral with the pump body and be equipped with two piece glands to permit adjustment or replacement of packing without disturbing the pump. Lantern rings shall be located at the inner ends of stuffing boxes so that all rings of packing can be removed without removal of the lantern rings. Water shall be fed into the stuffing box lantern rings for proper lubrication and cooling when the pump is operating.

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring loaded guard lever that locks in "Road" or "Pump" mode.

To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

In addition to this indicator light, an additional indication shall be provided to the pump operator at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "OK TO PUMP" indicator is lit.

AIR PUMP SHIFT LOCATION

The pump shift shall be mounted in the "best fit" location as determined by the apparatus manufacture.

AIR PRIMER SYSTEM

The priming system shall be a Trident Emergency Products compressed air powered high efficiency, multi-stage, venturi based Air Prime System.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump.

The priming components shall be mounted above the highest priming point on the suction side of the pump to permit air removal and allow for drainage. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass 'wye' type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall employ an 80 PSI (5.5 bar) pressure protection valve, located on the chassis auxiliary air tank.

Specifications for the

**Bidder
Complies**

Yes No

The primer shall be covered by a five (5) year parts warranty.

PRIMER CONTROL

There shall be one (1) push button control to actuate the primer control valve at the operator's panel.

MAIN PUMP INLET-LEFT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the left side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

The cap shall be National Standard Thread.

MAIN PUMP INLET-RIGHT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the right side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated cap installed on the Steamer Inlet.

The cap shall be National Standard Thread.

MASTER DRAIN VALVE

A Class 1 manifold type drain valve shall be installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled from the left side lower pump house sill. The control shall be a hand wheel knob marked "open" and "closed".

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper draining. If no lower or vertical sill exists, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver's side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

OVERHEAT PROTECTION MANAGER W/WARNING LIGHT

A Waterous Overheat Protection Manager (OPM) valve shall be installed to protect the pump from overheating. The OPM shall consist of a valve that opens when the water in the pump reaches 140 degrees Fahrenheit (60 degrees Celsius) and a warning light on the pump panel that is triggered by a thermal switch when the water in

Specifications for the

**Bidder
Complies**

Yes No

the pump reaches 180 degrees Fahrenheit (82 degrees Celsius). It shall be mechanical and not require constant operator monitoring.

The warning light shall act as an additional protection device if the temperature inside the pump keeps rising although the valve is open.

The relief valve shall discharge out below the running board.

PUMP COOLING LINE

There shall be a .38 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A valve shall be installed on the operator's panel.

PUMP ANODES

Two (2) pump anodes shall be installed in the pumping system, one (1) on the discharge side and one (1) on the suction side, to prevent damage from galvanic corrosion within the pump system.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with a minimum of 3.00 inch (77 mm), or greater as required by design, schedule 10 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 700 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches (38 mm) through 4.00 inches (100 mm). Sizes .75 inch (19 mm), 1.00 inch (25 mm) and 5.00 inches (125 mm) are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00 inch (25 mm) through 5.00 inches (125 mm) for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees Fahrenheit to +210 degrees Fahrenheit.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male .75 inch (19 mm) and 1.00 inch (25 mm) couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I.D. is utilized to assure maximum holding power when fastening couplings to hose.

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other appropriate connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied, and rubber coated "P" clamped, to keep the items secured.

DRAIN VALVES

Specifications for the

**Bidder
Complies**

Yes No

An Innovative Controls 3/4" quarter turn drain valve shall be included on each discharge, gated intake, and steamer valve (if applicable). A side stem, long stroke chrome plated lift handle shall be provided on the drain valve to facilitate use with a gloved hand. The drain valve shall have an ergonomically designed handle with a recessed verbiage tag area easily read by the operator before opening.

The drain valve shall be connected to the valve with a flexible hose that is routed in such a manner as to assure complete drainage to below the apparatus.

LEFT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus with the following specified components.

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with stainless steel ball.

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug, secured by a chain

INLET LOCATION

The inlet shall be located on the pump panel in the forward position.

LEFT SIDE DISCHARGE

There shall be two (2) gated discharges installed on the left side of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed

Specifications for the

**Bidder
Complies**

Yes No

below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female by male swivel with 45 degree elbow

One (1) 2.50 inch (65 mm) female by 1.50 inch (38 mm) male reducer

One (1) 1.50 inch (38 mm) female self-venting cap, secured by a chain

RIGHT SIDE DISCHARGE

There shall be one (1) gated discharge installed on the right side of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female by male swivel with 45 degree elbow

One (1) 2.50 inch (65 mm) female by 1.50 inch (38 mm) male reducer

One (1) 1.50 inch (38 mm) female self-venting cap, secured by a chain

RIGHT SIDE MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus provided with the following specified components.

DISCHARGE VALVE

A 4.00 inch (100 mm) Akron Brass 8000 series valve with a 3.00 inch handwheel control and position indicator.

DISCHARGE PLUMBING

Specifications for the

**Bidder
Complies**

Yes No

The plumbing shall consist of 4.00 inch (100 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 4.00 inch (100 mm) NST adapter

One (1) 4.00 inch (100 mm) NST female swivel by 5.00 inch (125 mm) Storz with 30 degree elbow

One (1) 5.00 inch (125 mm) Storz to 2.50 inch (65 mm) male NST adapter

One (1) 2.50 inch (65 mm) cap, secured by a chain

CROSSLAY AREA

The crosslay hose beds shall be located in the upper portion of the pump compartment.

The crosslay area shall span the entire width of the apparatus pump module. Removable flooring shall be provided in the hose bed area for drainage.

SINGLE STACK CROSSLAYS

The crosslay area shall be constructed with a minimum of 25.00-inch (635mm) approximate depth for laying a single stack of each hose size as specified below.

Chiksan swivels shall be installed just below the floor of each crosslay bed just high enough for hose couplings to be accessed and tightened on to chiksans. Chiksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

FIXED CROSSLAY DIVIDERS WITH NO HAND HOLD CUTOUTS

Each crosslay divider acting as a hose bed separator shall be fabricated of .188-inch smooth aluminum and shall have a dual-action sanded finish. Each divider shall NOT have hand hold cutouts provided.

1 3/4" CROSSLAY

A crosslay with the following specified components shall be provided for up to 200 feet (60 m) of 1.75 inch (44.4 mm) hose.

There shall be a total of two (2) provided.

DISCHARGE VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

Specifications for the

**Bidder
Complies**

Yes No

The plumbing shall consist of 2.00 inch (50 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST brass chiksan swivel

2 1/2" CROSSLAY

A crosslay with the following specified components shall be provided for up to 200 feet (60 m) of 2.50 inch (63.5 mm) hose.

There shall be a total of one (1) provided.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) NST brass chiksan swivel

CROSSLAY TRIM

Brushed stainless steel trim shall be installed at the openings on the bottom and on each side of the crosslay hose bed area. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

CROSSLAY COVER

The crosslay hose bed area shall have a vinyl cover installed on the top and sides of the crosslay area.

The top cover shall be held in place by an extrusion installed across the front edge of the crosslay hose bed and with Velcro across the rear edge. The sides of the crosslay cover shall be secured by means of elastic shock cord passing thru brass grommets. Hooks shall be installed at the lower corners to secure the cover to the apparatus.

CROSSLAY TOP & SIDES COVER COLOR

The crosslay hose bed covers shall be red in color.

LED CROSSLAY HOSE BED FLOOD LIGHT

Specifications for the

**Bidder
Complies**

Yes No

There shall be one (1) 6.00 inch LED Unity deck light model #BG-S-P46WLC with clear LED wide flood lamp provided and installed on the pump compartment to the driver's side to illuminate the crosslay hose bed area.

The light shall have a heavy duty chrome finish and rotate 360 degrees horizontally and 180 degrees vertically. The lamp shall be 12V with 2,730 candle power 50,000 hours of lamp life.

CROSSLAY LIGHT ACTIVATION

The crosslay light shall be activated when the park brake is set.

DISCHARGE GAUGES

A Thuemling 2.50 inch (65 mm) gauge shall be supplied for reading the pressure of each discharge greater than 1.50 inches (38 mm) in diameter, unless otherwise specified.

The gauge shall be a model BC-LFP-63.

GAUGE SCALE

Each gauge shall be marked for reading a pressure range of 0-400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

BEZELS FOR 2.5" DISCHARGE GAUGES

Highly-polished stainless steel Innovative Control bezels shall be provided around each of the 2.50 inch (65 mm) discharge pressure gauges to prevent corrosion and protect lenses and gauge cases. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve identifying verbiage and/or color labels.

APPARATUS PLUMBING LABELING

Innovative Controls verbiage tag bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive, which meets UL969 and NFPA standards.

PLUMBING LABELS

The plumbing labels, where applicable, shall be full color in place of the standard grey.

Color code tag sheet to be provided during the preconstruction meeting.

TANK TO PUMP LINES

The connections between the tank and the pump shall be capable of the flow recommendations as set forth in (NFPA) 1901, Standard for Automotive Fire Apparatus, latest revision and shall be tested to those standards when the pump is being certified.

Specifications for the

**Bidder
Complies**

Yes No

Two (2) non-collapsible flexible hoses and valves shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 piping shall be used to complete the connections from the tank to pump valves to separate ports in the water tank.

PRIMARY TANK TO PUMP

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

TANK TO PUMP VALVE

A 4.00 inch (100 mm) Akron Brass 8000 series 'electric valve' with bronze flat ball.

STYLE 9333 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9333 Navigator Pro™ 2.0 Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation. The controller must have up to three preset locations that can be user set and easily recalled upon each use.

The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. The display shall be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit must carry a five year warranty.

AUXILIARY TANK TO PUMP

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

TANK TO PUMP VALVE

A 4.00 inch (100 mm) Akron Brass 8000 series 'electric valve' with bronze flat ball.

STYLE 9333 VALVE CONTROLLER

The controller shall be an Akron Brass Style 9333 Navigator Pro™ 2.0 Valve Controller and shall be installed at the pump operator's panel location. The electric controls must be of true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. Two additional buttons shall be available to be

Specifications for the

**Bidder
Complies**

Yes No

used for preset selection, preset activation and menu navigation. The controller must have up to three preset locations that can be user set and easily recalled upon each use.

The unit must be capable of being used in conjunction with at least two additional displays to control one valve. The unit must provide position indication through a full color backlit LCD display. The display shall be a full color LCD display with a backlight. It shall have manual adjustment of the brightness as well as an auto-dimming option. The unit must carry a five year warranty.

TANK FILL LINE

One (1) 3.00 inch (76.20 mm) tank fill/recirculating line shall be installed from the pump directly to the booster tank.

TANK FILL VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

DIRECT TANK FILL

There shall be an external direct tank fill port installed on the rear of the apparatus.

A total quantity of two (2) shall be provided with the following specified components:

TANK FILL VALVE

A Fireman's Friend 4.00 inch (100 mm) valve(s) manufactured utilizing heavy gauge stainless steel casting (316), EPDM rubber seals, high-grade stainless steel springs and shafts, as well as stainless steel prevailing torque fasteners shall be installed.

A bleeder valve shall be included for the tank fill valve.

DIRECT TANK FILL PLUMBING

The plumbing shall consist of 4.00-inch (100 mm) piping.

DIRECT TANK FILL TERMINATION

The direct tank fill shall terminate with a 5.00-inch Storz 30-degree elbow fitting and cap.

DIRECT TANK FILL LOCATION

There shall be a total of two (2) direct tank fills located on the rear of the apparatus. One (1) located on the left rear and right rear of the apparatus tank.

== Tanker Elliptical - Body - 10.240 10/03/22 ==

STAINLESS STEEL

The apparatus body shall be a durable design with a structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The design provides maximum

Specifications for the

**Bidder
Complies**

Yes No

torsional resistance and load capabilities. The entire frame structure shall be welded together utilizing an A.W.S. Certified welding procedure. **{No Exceptions}**

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design, ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable. **{No Exceptions}**

BODY STRUCTURE MEMBERS

The body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.50 inches (63.50 mm) in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from 14 gauge to 12 gauge throughout dependent on the design requirement.

BODY MATERIAL TYPE

All body structure and sheet material shall be premium grade Stainless Steel, Type 304L. This alloy is utilized because it provides an excellent balance of material strength, manufacturing properties, and corrosion resistance that is achieved through high levels of both chromium and nickel.

ECK® ANTI-CORROSION PROCESS

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by Eck®, which prevents corrosion by providing a barrier between dissimilar metals, sealing out moisture and absorbing energy created by a dissimilar metal reaction.

FRONT BODY COMPARTMENT WALLS

The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

REAR BODY COMPARTMENT WALLS

The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

COMPARTMENT TOP

The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

COMPARTMENT FLOORS

The body compartments shall be enclosed with stainless steel sheet metal as specified above. The compartment floors shall have a 1.00 inch (25.40 mm) lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a "sweep-out" compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

Specifications for the

**Bidder
Complies**

Yes No

COMPARTMENT LOAD CAPACITY

Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs (453.59 kg) per compartment
{No Exceptions}

NOTE: These values are for design purposes only for individual compartment construction and are not meant to be used as an actual overall weight rating for equipment load per compartment for the specified apparatus. The apparatus shall be engineered such that the completed unit, when loaded to its estimated in-service weight, shall comply with the gross axle weight ratings {GAWR}, the overall gross vehicle weight rating {GVWR}, and the chassis manufacturer's load balance guidelines per NFPA.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be Akzo Nobel, Sikkens brand, LVBT650 basecoat, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra-red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cello solves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Safety Data Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Specifications for the

**Bidder
Complies**

Yes No

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects. The coating will meet the following test performance properties as a minimum standard.

BODY PAINT COLOR

The apparatus body shall be painted to match {"[MUST SPECIFY](#)"}.

SUPERLINER COMPARTMENT FINISH

The compartment interiors shall be coated with Superliner.

COMPARTMENT FINISH COLOR

The Superliner Color shall be Medium Gray.

UNDERCOATING

The underside of the apparatus body shall be cleaned and prepared for the application of a sprayed on automotive type undercoating for added corrosion resistance.

The undercoating is to be of a quick dry rubberized, solvent based coating that is (black) in color. Resists rust and abrasion as it seals out dust and moisture.

The application does not include any additional underbody, chassis or body cavity components.

STRUCTURAL BODY WARRANTY

A structural Stainless Steel body warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship under normal use and service for a period of twenty (20) years.

PAINT WARRANTY

A Prorated Paint Warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

DIAMOND PLATE FRONT OVERLAYS

The entire front face of the apparatus body shall have aluminum diamond plate overlays installed.

RAW STAINLESS REAR OVERLAYS

The entire rear face of the apparatus body shall have raw stainless steel overlays installed for the installation of chevron striping.

Specifications for the

**Bidder
Complies**

Yes No

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

FRONT CORNER TRIM 1/8" ALUMINUM DIAMOND PLATE

The front of the apparatus body, vertical wall overlay shall be integrated with a 1/8" aluminum diamond plate corner trim pieces for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

REAR CORNER TRIM 16 GAUGE BRUSHED STAINLESS STEEL

The rear face of the apparatus body, vertical wall overlays shall be installed with a 16 gauge brushed stainless steel corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

CATWALK

The catwalks shall be constructed with materials of a non-slip .125 inch embossed aluminum diamond plate.

VIBRA-TORQ™ BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it "floats" above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8"-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torq™ body mounting system shall have a lifetime warranty.

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 100.00 inch (2.54 m) excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

Specifications for the

**Bidder
Complies**

Yes No

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. Chrome louvered plate vents shall be installed appropriately on the compartment interior walls.

Tandem Axle Elliptical Tanker Body, Low Left & Low Right (Over 2000 gallons)

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1"

There shall be one (1) compartment ahead of the rear wheels, directly behind the chassis cab on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 60.00 inches wide by 33.00 inches high with a depth of 25.50 inches.

The framed opening shall measure approximately 57.50 inches wide by 29.50 inches high.

The compartment will have approximately 29.22 cubic feet of space.

Compartment "L2"

There shall be one (1) compartment behind the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 28.00 inches wide by 33.00 inches high with a depth of 25.50 inches.

The framed opening shall measure approximately 25.50 inches wide by 29.50 inches high.

The compartment will have approximately 13.64 cubic feet of space.

Compartment "R1"

There shall be one (1) compartment ahead of the rear wheels, directly behind the chassis cab on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 60.00 inches wide by 33.00 inches high with a depth of 25.50 inches.

The framed opening shall measure approximately 57.50 inches wide by 29.50 inches high.

The compartment will have approximately 29.22 cubic feet of space.

Compartment "R2"

There shall be one (1) compartment behind the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 28.00 inches wide by 33.00 inches high with a depth of 25.50 inches.

Specifications for the

**Bidder
Complies**

Yes No

The framed opening shall measure approximately 25.50 inches wide by 29.50 inches high.

The compartment will have approximately 13.64 cubic feet of space.

ROLL-UP DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

R•O•M ROLL-UP DOOR

A R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double “V” seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece “D” shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counterbalance system. Counterbalance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counterbalance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counterbalance system.

SIDE COMPARTMENT DOOR ALUMINUM SATIN FINISH

The side compartment roll up doors shall be satin aluminum finish.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

COMPARTMENT LIGHTING

Specifications for the

**Bidder
Complies**

Yes No

One (1) LED Tube light model #RX-15T16-5050, shall be installed in each body compartment. The tube light shall be centered vertically along the forward side of the door framing and at maximum length available to fit the opening.

The light in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors.

COMPARTMENT LIGHTING ACTIVATION

Each compartment light shall be activated with the ignition, park brake and the respective compartment door open switch

REAR TAILBOARD

The rear of the apparatus body shall be vertical in design - otherwise known as a 'flat-back'.

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body.

The tailboard shall be an independent assembly welded to the rear body structural framing to provide body protection and a solid rear stepping platform.

The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (NFPA) 1901, Standard for Automotive Fire Apparatus.

TAILBOARD LENGTH

The rear tailboard shall be approximately 20.00 inches (508 mm) deep and shall incorporate an extruded stair tread "Diamondback" material stepping surface bolted in place which spans the width of the apparatus. The extruded stepping surface shall be completely enclosed by the supporting structural framework to minimize damage.

The ventilated "Diamondback" material shall be capable of being easily replaced if necessary, using only hand tools. The framework shall be covered with an adhesive tape providing an aggressive traction surface. Use of any aluminum diamond plate material on these areas shall not be acceptable.

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

WHEEL WELL PANELS

The body panel in the wheel well area on each side of the body shall be fabricated of same material type as the body and finish painted.

Specifications for the

**Bidder
Complies**

Yes No

SCBA BOTTLE COMPARTMENTS

Cylindrical SCBA storage compartments shall be installed in the wheel well area above the wheel well liner, protected from dirt, rocks, and other debris.

The storage compartments shall be made of a tube that interfaces with a spring loaded cast aluminum door and housing - fastened to the wheel well panel for a secure installation. The inside of each compartment shall be lined with material (if required) to protect the air bottles from being damaged.

The storage compartments shall be installed in the apparatus at an inclined angle and incorporate a 1" nylon safety loop to be attached to the top of the bottle, to prevent the bottles from sliding forward when stored. There shall be holes drilled in the tubes for drainage in the event that water enters the compartment. Each SCBA compartment shall be a minimum internal diameter of 7.5" and be at least 25" deep.

There shall be two (2) compartments on each side of the apparatus with one forward and one rearward of each wheel well.

FENDERETTES

Four (4) polished stainless steel fenderettes shall be provided on body rear wheel well openings, two (2) each side. A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

TANK CAPACITY

The tank shall be 3000 gallons (11,356 liter) in capacity.

TANK WARRANTY

A lifetime tank warranty shall be provided by the tank manufacturer, UPF.

Please see the official warranty document in the appendix (attached) for specific details.

WATER TANK

An elliptical water tank manufactured by United Plastic Fabricating, Inc. shall be supplied. The "Ellipse" elliptical tank shall be designed for installation on a fire apparatus chassis and shall be completely independent of the apparatus body compartments. The water tank shall be constructed in full compliance to applicable sections of NFPA standards.

The tank manufacturer shall certify the capacity of the water tank. The capacity shall be recorded on the manufacturer's record of construction and the certification shall be provided to the purchaser when the apparatus is delivered.

CONSTRUCTION

The entire tank, sump, and other components of tank shall be constructed of .50 inch (12.7 mm) Type PT2E poly. The material shall be a non-corrosive stress relieved thermo-plastic, natural in color. The tank "barrel" shall be constructed of a series of pre-fabricated sections utilizing one-piece cell modules containing .50 inch (12.7 mm) thick partitions to form the tank.

The construction process shall use Type PT2E poly welding rod and shall be nitrogen-welded with all joints and seams double welded.

Specifications for the

**Bidder
Complies**

Yes No

The construction process shall incorporate three (3) quality inspections during production of the tank. All production, assembly, and certifications of the tank shall be performed at the United Plastic Fabricating, Inc. facilities.

TANK MOUNTING

The water tank shall be mounted to the truck chassis utilizing United Plastic Fabricating's engineered mounting system. Captive mounting brackets adequately sized for the tank shall be provided to attach the tank to the sub-frame utilizing a cushioned isolator for positive and negative vertical retention.

The front mounts shall be spring-loaded to allow for chassis flexing under extreme road conditions.

TANK BAFFLING

The interior of the water tank shall be designed with individual cell modules that shall contain one longitudinal and one transverse partition creating a compartment type baffling system. The baffling shall be in full compliance to applicable NFPA standards.

The "Closed-Curve" compartment type baffling system shall include primary transverse partitions and end walls that shall extend down to the bottom of the support sills. Channel shaped longitudinal sill supports shall be externally extrusion welded to the underside of the barrel, the tank end walls, and the primary transverse partitions. Drain holes shall be provided at the ends of each section.

All baffling partitions shall be constructed of .375 inch (9.5 mm) poly. The baffling partitions shall be interlocked and welded to each other, as well, as to the walls of the tank.

Provisions are to be incorporated for air and water to adequately pass through the "Closed-Curve" baffles to facilitate filling and evacuation requirements and shall be staggered in an efficient design to reduce water turbulence while in motion.

TANK EXTERIOR FINISH

The exterior of the elliptical water tank shall be "jacketed" with 20 gauge mirrored stainless steel. The front and rear outer heads shall have a brushed stainless finish. All visible portions of the tank shall be covered and shall provide an aesthetically pleasing finished appearance.

There shall be Styrofoam filler panels that shall be fastened to the outside of the tank shell. The panels shall provide internal support of the stainless steel. The jacket shall be attached to the tank utilizing stainless steel hardware.

For added strength and stability the top walkway of the barrel will be reinforced with a section of 18 gauge corrosion resistant sheet curved to conform to the radius of the tank.

Areas around fill tower(s) and dump manifolds if applicable, shall be trimmed with mirrored stainless steel in a pleasing manner.

REAR LIGHT HOUSING MANIFOLD

There shall be a manufactured mirrored stainless steel light manifold assembly mounted to the upper rear of the tank for placement of lighting specified for the rear and side facing locations.

TANK TOP STEP SURFACE

Specifications for the

**Bidder
Complies**

Yes No

There shall be black grip tape strips applied to the top surface of the water tank to provide for secure safe footing when on top of the tank. They shall be applied from the front to the rear of the water tank. These strips shall be approximately 4.00 inches (101.60 mm) wide by 16.00 inches (406.40 mm) long.

FILL TOWER

The tank shall have a manual fill tower. The fill tower shall be constructed of Type PT2E polypropylene. The fill tower shall have an opening of a minimum of 500 square inches with a minimum height of 8.00 inch (203.20 mm) from the highest point on the elliptical barrel.

The fill tower shall have a polypropylene hinged-type cover with a removable .25 inch (6.4 mm) polypropylene screen. The cover shall hinge back towards the center of the tank and shall be retained using a rubber pull latch and sealed with a bulb-type EDPM gasket. A tether strap shall be provided hold the lid in the open position.

Inside the fill tower there shall be fastened a combination vent overflow pipe approximately 4.00 inch (100 mm) down from the top. The 6.00 inch (152.40 mm) vent and water overflow piping shall be with a Schedule 40 polypropylene pipe designed to run through the tank and discharge aft of the rear wheels or axle area.

ADDITIONAL 6" VENT/OVERFLOW

An additional 6" diameter vent/overflow pipe shall be provided and shall run through the tank, from the fill tower and exit through the floor of the tank behind the rear axle. This location will not interfere with water flow during dump operations and will minimize traction loss of the rear wheels. The additional vent/overflow system enhances tank fill and dump times for optimum operational functionality.

TANK SUMP

The water tank sump shall be constructed of Type PT2E polypropylene with a .75 inch (19.1 mm) floor and shall be used as a combination clean-out and drain. The sump shall be located at the underside of the tank along tank's longitudinal centerline and shall have a minimum 4.00 inch (101.6 mm) NPT female threaded outlet on the bottom for a drain plug. The anti-swirl device shall be a horizontal plate located approximately 2.00 inch (50 mm) above the sump. Plate installation shall avoid cavitation over the sump during rapid water removal from tank.

SUMP PLUG

The sump shall have a 3.00 inch (77 mm) plug for use in draining and cleaning out the tank.

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

REAR DUMP VALVE

A 10.00 inch stainless steel square Newton Kwik-Dump valve shall be installed on the water tank. There shall be a 14.00 inch brushed stainless steel flip down chute assembly provided.

The valve shall be equipped with an electric actuator, controlled by a weather resistant toggle switch.

The control shall be located near the valve on the apparatus body; positioned away from the immediate dumping area, however close enough to monitor the dumping procedure. The valve will not operate unless the Emergency Master switch is in the on position.

Specifications for the

**Bidder
Complies**

Yes No

VALVE CONTROL

The rear dump valve shall have controls mounted on the right rear face of the apparatus and on the rocker switch panel in the cab to facilitate remote operation. An indicator light shall be installed in the cab to indicate if the valve is not in the fully closed position.

DUMP CHUTE CONTROLS/CAST PRODUCTS HOUSING

All dump valve and extension chute control switches shall be installed in a Cast Products enclosure model (#EB0006) with a weather resistant-hinged door. A LED TecNiq accent light will be installed inside the enclosure to illuminate the switching area. The light shall be activated whenever the ignition is in the “on” position and the park brake is “set”.

The following shall be provided:

- Light- TecNiq/Dragon (white) model #D04-W00-1
- Light Case- TecNiq/Dragon (white) model #D04-0SH0-1

DUMP VALVE LOCATION

The valve shall be located on the flat back wall of the apparatus.

STAINLESS STEEL ELECTRIC TELESCOPING CHUTE EXTENSION

An 18.00 inch stainless steel electric telescoping dump chute extension shall be installed.

If the chute is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

The chute shall be actuated by the same momentary toggle switch that actuates the valve. The chute shall be fully extended prior to the valve opening and the valve shall be fully closed prior to the chute retracting.

SIDE DUMP VALVES BETWEEN TANDEM AXLES

Two (2) 10.00 inch stainless steel square Newton Kwik-Dump valves shall be installed on the water tank between the tandem axles, one (1) on the left side and one (1) on the right side of the apparatus body. The valves shall be equipped with electric actuators controlled by a weather resistant toggle switch.

The location of the valve controls shall be positioned away from the immediate dumping area, however close enough to monitor the dumping procedure. The valves will not operate unless the Emergency Master switch is in the on position.

VALVE CONTROLS

The side dump valve shall have controls mounted directly adjacent to the dump valve and at the rocker switch panel in the chassis cab to facilitate remote operation. An indicator light shall be installed in the cab to indicate if the valve is not in the fully closed position.

DUMP CHUTE CONTROLS/CAST PRODUCTS HOUSING

All dump valve and extension chute control switches shall be installed in a Cast Products enclosure model (#EB0006) with a weather resistant-hinged door. A LED TecNiq accent light will be installed inside the enclosure to illuminate the switching area. The light shall be activated whenever the ignition is in the “on”

Specifications for the

**Bidder
Complies**

Yes No

position and the park brake is “set”.

The following shall be provided:

Light- TecNiq/Dragon (white) model #D04-W00-1

Light Case- TecNiq/Dragon (white) model #D04-0SH0-1

DUMP VALVE DOOR

Each side dump valve specified shall have a mirrored stainless steel door that shall open and close with actuation of the dump valve.

STAINLESS STEEL ELECTRIC TELESCOPING CHUTE EXTENSION

An 18.00 inch stainless steel electric telescoping dump chute extension shall be installed.

If the chute is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

The chute shall be actuated by the same momentary toggle switch that actuates the valve. The chute shall be fully extended prior to the valve opening and the valve shall be fully closed prior to the chute retracting.

HOSE LAY STORAGE

One (1) brushed stainless steel hose lay storage area shall be fabricated and installed above the catwalk on the right side of the apparatus.

The hose lay shall be constructed with 13.00 inch (330.20 mm) high sides by the full length of the body side.

The edges of the hose lay shall be rounded to protect the hose when loading and unloading.

HOSE LAY COVER

The hose lay area shall have a vinyl cover installed on the top, front and rear.

vinyl cover securement to be determined at precon.

HOSE LAY TOP & SIDES COVER COLOR

The hose bed covers shall be red in color.

ZICO QUIC-LIFT Hydraulic Portable Tank System

There shall be a Ziamatic PTS-HA hydraulic Quic-Lift folding tank access system installed above the side compartments. The system shall be interlocked to prevent the rack from operating with hinged compartment doors open. The system shall be equipped with two (2) high strength aluminum casting sets with two, self-contained hydraulic actuators, creating a more even and parallel operating motion.

Flashing LED warning lights shall be provided at the front and rear of the folding tank rack and shall automatically activate when the folding tank system is in the down position. There shall also be reflective striping installed on the portion of rack that protrudes out from the apparatus body side.

Specifications for the

**Bidder
Complies**

Yes No

If the carrier is not properly stowed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

TANK CARRIER COVER HOUSING

The tank carrier shall be fabricated of aluminum and painted to color match the apparatus body.

TANK CARRIER LOCATION

The tank carrier shall be supplied on the left side of the apparatus.

TANK RACK ACTIVATION

The switch panel provided with the tank assembly to operate the equipment rack shall be installed on the apparatus in the below specified location.

TANK CARRIER CONTROL

The switch to operate the tank carrier shall be located on the adjacent side at the rear of the apparatus. There shall be a safety switch in the side compartment that will prevent the rack from moving in the event that one of the compartment doors is open.

FOLDING TANK STORAGE PROVISION

The above specified folding tank storage shall be manufactured large enough to accommodate a 3500-gallon folding tank, as specified below.

FOLDING TANK

There shall be a 3500 gallon portable tank provided with the apparatus. It shall be manufactured by Husky. The tank shall have a steel frame and a 22 oz vinyl liner.

The liner of the tank shall be yellow in color.

SUCTION HOSE STORAGE

Two (2) suction hose compartments shall be provided and manufactured integral to the body, one (1) left and one (1) right. The compartments shall be located below the catwalk surfaces. The heights of the rear side compartments on each side shall be reduced accordingly for the storage areas.

The compartments on each side shall create a fully formed one piece exterior appearance, accessible from the rear of the apparatus. The exterior surfaces shall be painted body job color.

All items shall be stored in their own sleeve to allow one item to be removed without disturbing the others. There shall be a stop located in the front each section to prevent each item from sliding forward.

The interior floors of each compartment shall be lined with black ABS plastic for ease of storing and removing the suction hose.

ENCLOSED SUCTION HOSE COMPARTMENTS DOOR

Each door for the suction hose compartments shall be fabricated of brushed material and hinged on the inboard edge and shall be equipped with one (1) push button style latch. There shall be a rubber bumper installed at the top and bottom corners of the door for protection.

Specifications for the

**Bidder
Complies**

Yes No

If the door is not properly closed and the parking brake is released, it shall activate the "hazard light" in the cab to alert the crew.

SUCTION HOSE

The following suction hose shall be provided to be stored in the compartment layout as specified above.

There shall be Two (2) 10 foot length(s) of 6.00 inch clear PVC suction hose with lightweight couplings provided with the above specified storage.

COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body compartments, in the upper and lower sections, to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

SIDE RUB RAILS (ALUMINUM CHANNEL)

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

The rub rails shall be approximately 3.00 inches high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with .50 inch nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

RUB RAIL RETRO-REFLECTIVE STRIPING

One inch retro-reflective striping shall be applied to the length of each side rub rail section making the perimeter of the apparatus more readily visible.

The reflective striping shall be "Ruby Red" in color.

FOLDING STEPS

Cast Products, Inc. model #SP6610-1CH dual LED illuminated folding steps, made of high strength die cast aluminum with a protective chromed coating, pyramid tread platform, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall have a minimum of 46 sq. inches of surface area capable of sustaining a 1200 lb. static load. The steps shall be mounted no more than 18" inches between each step.

STEP LOCATION

Two (2) folding steps shall be installed on the right forward vertical wall of the front compartment.

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard

Specifications for the

**Bidder
Complies**

Yes No

requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

To be located at Precon

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

ALUMINUM ACCESS LADDER

A fixed position access ladder shall be provided on the apparatus as specified. The ladder shall be constructed of 1.25 knurled aluminum tubing. The ladder shall provide easy access to the top of the water tank. The rungs of the ladder shall be manufactured of a non-slip stepping surface.

ACCESS LADDER LOCATION

The ladder shall be installed at the front on the right side of the apparatus

STEP LIGHTING

One (1) light shall be installed to illuminate the stepping areas as provided. The light shall be a TecNiq #E03 Eon LED light.

The light shall be installed on the top front head of the tank facing towards the rear of the apparatus and will illuminate the area between the ladder and the manhole cover on top of the water tank.

NO Rear/Auxiliary Handrails, Elliptical

TOW EYES

There shall be one (1) tow eye installed at the rear, centered under the rear dump chute.

The tow eye shall be connected directly to the chassis frame. The tow shall be surrounded by a rubber boot and trimmed with stainless steel.

== Tanker Elliptical - Electrical - 10.240 10/03/22 ==

LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the (NFPA) 1901, Standard for Automotive Fire Apparatus.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

Specifications for the

**Bidder
Complies**

Yes No

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

The node modules shall include protective cover(s) to prevent damage to the node or electrical system during equipment installation and/or removal. The node covers shall be approximately 16.00 to 22.00 inches with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelf mounting structure and may limit the height of unistrut or shelf height within the compartments.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be furnished in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted.**

MULTI-PLEXED ELECTRICAL WARRANTY

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc.; shall be provided by the apparatus manufacture for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

VFD DISPLAYS

A VFD display for the multiplex shall be provided and installed in the chassis cab visible to the driver.

NODE

An electrical distribution node or relay shall be installed in the below locations of the apparatus body.

The pump node shall be mounted as high as practical in the full depth portion of the right front compartment.

The rear body nodes shall be mounted as high and as far rearward as practical on the back wall of the rearmost compartment.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16.00 to 22.00 inches in length with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelve mounting structure and shall limit the height of unistrut or shelf height within the compartments.

PERIMETER LIGHTS LOCATION

There shall be four (4) underbody perimeter lights installed on the apparatus positioned to provide illumination to the immediate ground area around the unit.

One (1) under each side of the pumphouse running boards and two (2) under the rear tailboard.

Specifications for the

**Bidder
Complies**

Yes No

PERIMETER LIGHTS

The underbody perimeter lights provided will be TecNiq model T44 series, 4" round, 8 diode LED lights.

PERIMETER LIGHTS ACTIVATION

The perimeter lights under the body shall illuminate the area with the activation of the chassis ground lights.

UPPER LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

UPPER ZONE A:

There shall be a Whelen model F4N0QLED 60.00 inch NFPA Edge Freedom IV lightbar provided and installed with the apparatus.

The lightbar shall house two (2) corner red linear LEDs, two (2) front red linear LEDs, two (2) front white linear LEDs and two (2) side red linear LEDs. The outer lenses shall be clear.

LIGHTBAR WARNING LIGHT SWITCH E-MASTER ONLY

The lightbar warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

UPPER ZONE C:

There shall be two (2) Whelen model L31H*FN beacons with 360 degree LED lights, provided and installed on the apparatus.

One (1) each side on the rear upper outboard corners of the apparatus.

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red with red lenses.

UPPER REAR WARNING LIGHT SWITCH E-MASTER ONLY

The upper rear warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

LOWER ZONE A:

There shall be two (2) Whelen model M6 Super LED lights with chrome bezels provided and installed on the front face of the apparatus chassis as specified.

FRONT WARNING LIGHTS FLASH

Specifications for the

**Bidder
Complies**

Yes No

The lower front lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

FRONT WARNING LIGHTS COLOR

The lower front warning lights mounted on the cab front positions shall be red with red lenses.

LOWER FRONT WARNING LIGHT SWITCH E-MASTER ONLY

The lower front warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LOWER ZONE B&D:

There shall be six (6) Whelen model M6 series LED lights with chrome bezels, three (3) each side, provided and installed with the apparatus.

SIDE WARNING LIGHTS FLASH

The lower side lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

SIDE WARNING LIGHTS COLOR

The lower side warning lights mounted on the side positions shall be red with red lenses.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the apparatus shall be mounted at the forward side chassis location, at the rear wheel well panel and at the rear tailboard location.

LOWER ZONES B&D CAST ALUMINUM ANGLED LIGHT HOUSING

A cast aluminum angled light housing shall be used for the rearmost warning light in zones B&D to ensure the light is mounted as far rearward as possible on the tailboard.

LOWER SIDE WARNING LIGHT SWITCH E-MASTER ONLY

The lower side warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LOWER ZONE C:

There shall be two (2) Whelen model M6 series Super-LED lights with chrome bezels, one (1) each side, on provided and installed on the rear of the body.

REAR WARNING LIGHTS FLASH

The lower rear lights shall feature multiple flash patterns including steady burn.

NO Low Intensity Flash Pattern

Specifications for the

**Bidder
Complies**

Yes No

REAR WARNING LIGHTS COLOR

The lower rear warning lights mounted at the rear shall be red with red lenses.

LOWER REAR WARNING LIGHT SWITCH E-MASTER ONLY

The lower rear warning lights shall be controlled through the master warning switch only. There shall not be a secondary switch.

LED REAR TAILLIGHT ASSEMBLY

There shall be Whelen M6-Series Super LED rear taillight assemblies provided and installed with the apparatus, one (1) each side at the rear.

The following shall be installed in the order as specified from top to bottom:

- One (1) M62BTT LED red brake light
- One (1) M62T LED series amber turn signal light
- One (1) M62BU LED clear back-up light

MOUNTING ASSEMBLY

There shall be Whelen 4-position vertical chrome plated housing provided for each taillight assembly.

The upper most open cavity shall be filled with the specified warning light for the rear of the apparatus.

REAR TAILLIGHTS COLOR

The taillights mounted at the rear shall have clear lenses.

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

LED DOT LIGHTING

There shall be seven (7) lights located on the rear of the apparatus. Three (3) of the lights shall be mounted on the rear of the apparatus center location of the tailboard, for use as identification lamps. Two (2) additional lights shall be located on the rear outboard locations, one (1) each side as high as possible. Two (2) lights shall be mounted on the sides facing the side at the rear corners, for use as clearance lamps.

The lights shall be TecNiq S17 series LED red markers with red lens.

DOT ADDITIONAL MARKER LIGHTS

There shall be two (2) amber LED intermediate marker lights/intermediate turn signals installed in the rub rail, forward of the rear wheel well, one (1) each side.

The lights shall be TecNiq S17 series LED amber markers/turn with amber lens.

INTERMEDIATE TURN SIGNALS

The intermediate turn signals will flash with the turn indicators.

Specifications for the

**Bidder
Complies**

Yes No

REAR DIRECTIONAL LIGHTBAR

There shall be a Whelen model #TAL65 36.00 inch long directional lightbar with six (6) amber 500 series LED light heads provided and installed on the apparatus.

The rear directional lights shall be controlled by a Whelen Model TACTL5 control head.

RDL CONTROL HEAD MOUNTING LOCATION

Rear Directional Lightbar control head shall be mounted in the rocker panel cutout provided by that chassis manufacturer.

DIRECTIONAL LIGHTBAR LOCATION & PROTECTION

The rear directional light bar shall be installed to the bottom of the rear light manifold.

REVERSE CAMERA/MONITORING SYSTEM

A Zone Defense rear vision camera kit shall be provided and installed in the apparatus and will include a 7.00 inch LCD colored monitor and three (3) cameras.

The system shall include an integrated microphone and speaker which shall permit voice communication to the driver from the back-up advisor.

The cameras shall be activated manually or when the apparatus is placed in reverse.

REAR VIEW CAMERA LOCATION

Three (3) cameras shall be surface mounted on the apparatus body for maximum viewing capability.

One (1) camera shall be mounted at the rear of the body (center location) and may include a protective shroud as required and two (2) teardrop cameras shall be mounted at the rear wheel well panel, one (1) each side, for dump operations.

CAMERA MONITOR MOUNTING LOCATION

The camera monitor shall be mounted in the driver's rocker switch panel.

SIDE SCENE LIGHT LOCATION

There shall be four (4) scene lights installed on the sides of the apparatus, two (2) on each side.

One (1) located at the front and one (1) located at the rear corner.

SCENE LIGHT MODEL

Whelen Pioneer series model #PCPSM1C LED single combination spot/flood scene lighting with chrome flange shall be mounted on the apparatus.

Each lamp head shall have one (1) 12v Super-LED® panel at 76 watts total. The light head shall draw 6.0 amps and generate 8,000 lumens. Each lamp head shall be of true surface mount style requiring no body cutouts. Each lamp head shall be no more than 6.37" inches high by 8.97" inches wide by 1.72" inches deep.

Specifications for the

**Bidder
Complies**

Yes No

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated by two (2) rocker switches located on the switch panel in the cab, one (1) for each side of the apparatus.

The switches shall be labeled as follows:

Left Scene

Right Scene

REAR SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the rear facing vertical surface of the apparatus, one (1) on each side.

SCENE LIGHT MODEL

Whelen Pioneer series model #PCPSM1C LED single combination spot/flood scene lighting with chrome flange shall be mounted on the apparatus.

Each lamp head shall have one (1) 12v Super-LED® panel at 76 watts total. The light head shall draw 6.0 amps and generate 8,000 lumens. Each lamp head shall be of true surface mount style requiring no body cutouts. Each lamp head shall be no more than 6.37" inches high by 8.97" inches wide by 1.72" inches deep.

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated when the apparatus transmission is shifted into reverse and by a rocker switch located on the switch panel in the cab. The scene shall also be interlocked with the park brake.

The switch shall be labeled as follows:

Rear Scene

FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.

SCENE LIGHT MODEL

One (1) HiViz model FireTech FT-B-46-W LED scene light with white housing shall be installed on the apparatus.

The light head shall draw 13.75 amps and generate 15,840 raw lumens.

FRONT SCENE LIGHT ACTIVATION

The front scene lighting shall be activated by a rocker switch located on the switch panel in the cab.

The switch shall be labeled as follows:

Front Scene

== Tanker Elliptical - Extras - 10.240 10/03/22 ==

Specifications for the

**Bidder
Complies**

Yes No

3M REFLECTIVE STRIPING

There shall be a 4.00 inch (101.60 mm) high, 3M reflective stripe applied to the chassis and apparatus body as specified:

The above specified Striping shall consist of one color. The provided stripe shall be:
reflective stripe white in color.

STRIPE PATTERN

The reflective striping shall be applied around the perimeter of the apparatus in a straight line pattern.

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with 3M Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors.

CHEVRON COLOR

The retro-reflective chevron striping shall be red and fluorescent yellow-green in color.

FIRE DEPARTMENT SUPPLIED LETTERING

The apparatus lettering shall be provided and installed by the Fire Department after final delivery of the completed apparatus.

FIRE DEPARTMENT SUPPLIED DECALS

The apparatus decals shall be provided and installed by the Fire Department after final delivery of the completed apparatus.

LICENSE PLATE MOUNTING

A Cast Products, model LP0004-1-B, cast aluminum fully enclosed license plate bracket shall be installed. The bracket shall incorporate a clear LED light (WL0501) to illuminate the license plate and meet DOT requirements.

LICENSE PLATE BRACKET LOCATION

The above specified license plate bracket shall be installed at the back of the apparatus on the right side. The bracket shall be mounted to meet all applicable DOT standards.

MISCELLANEOUS EQUIPMENT

The following equipment list shall be provided with the completed apparatus.

WHEEL CHOCKS

One (1) set of NFPA compliant Ziamatic folding wheel chocks model # SAC-44-E shall be supplied with the

Specifications for the

**Bidder
Complies**

Yes No

apparatus.

ZICO WHEEL CHOCK MOUNTING BRACKETS

One (1) set of Ziamatic folding wheel chock underbody horizontal mounts, model # SQCH-44-H, shall be installed on the apparatus under the body in front of the rear wheels on the left side.

S P E C I F I C A T I O N P R O P O S A L

Data Code Description

Price Level

PRL-27D SD PRL-27D (EFF:MY24 ORDERS)

Data Version

DRL-024 SPECPRO21 DATA RELEASE VER 024

Vehicle Configuration

001-177 114SD CONVENTIONAL CHASSIS
 004-224 2024 MODEL YEAR SPECIFIED
 002-004 SET BACK AXLE - TRUCK
 019-002 STRAIGHT TRUCK PROVISION
 003-001 LH PRIMARY STEERING LOCATION

General Service

AA1-002 TRUCK CONFIGURATION
 AA6-001 DOMICILED, USA 50 STATES
 (INCLUDING CALIFORNIA AND CARB
 OPT-IN STATES)
 A85-020 FIRE SERVICE
 A84-1EV EMERGENCY VEHICLES BUSINESS
 SEGMENT
 AA4-002 LIQUID BULK COMMODITY
 AA5-002 TERRAIN/DUTY: 100% (ALL) OF THE
 TIME, IN TRANSIT, IS SPENT ON PAVED
 ROADS
 AB1-008 MAXIMUM 8% EXPECTED GRADE
 AB5-001 SMOOTH CONCRETE OR ASPHALT
 PAVEMENT - MOST SEVERE IN-
 TRANSIT (BETWEEN SITES) ROAD
 SURFACE
 995-1AE FREIGHTLINER LEVEL II WARRANTY
 A66-99D EXPECTED FRONT AXLE(S) LOAD :
 18000.0 lbs
 A68-99D EXPECTED REAR DRIVE AXLE(S) LOAD
 : 46000.0 lbs
 A63-99D EXPECTED GROSS VEHICLE WEIGHT
 CAPACITY : 64000.0 lbs

Truck Service

AA3-027 FIRE TANK/PUMPER - MAIN DRIVELINE
 DRIVEN SPLIT-SHAFT PTO/PUMP
 AF4-99D EXPECTED EMPTY BODY WEIGHT :
 3600.0 lbs

Specifications for the

**Bidder
Complies**

Yes No

Data Code Description

AF3-2AG SPARTAN ERV

Engine

101-3FC CUM X12 500EV HP @ 1900 RPM, 1700
LB-FT @ 1000 RPM, 2000 GOV RPM,
R/F/E

Electronic Parameters

79A-060 60 MPH ROAD SPEED LIMIT
79B-000 CRUISE CONTROL SPEED LIMIT SAME
AS ROAD SPEED LIMIT
79K-003 PTO MODE ENGINE RPM LIMIT - 800
RPM
79M-001 PTO MODE BRAKE OVERRIDE -
SERVICE BRAKE APPLIED
79P-003 PTO RPM WITH CRUISE SET SWITCH -
800 RPM
79Q-003 PTO RPM WITH CRUISE RESUME
SWITCH - 800 RPM
79S-001 PTO MODE CANCEL VEHICLE SPEED - 5
MPH
79U-007 PTO GOVERNOR RAMP RATE - 250 RPM
PER SECOND
79W-001 ONE REMOTE PTO SPEED
79X-003 PTO SPEED 1 SETTING - 800 RPM
80G-002 PTO MINIMUM RPM - 700
80J-002 REGEN INHIBIT SPEED THRESHOLD - 5
MPH

Engine Equipment

99C-021 2010 EPA/CARB/GHG21
CONFIGURATION
99D-012 2008 CARB EMISSION CERTIFICATION -
EXEMPTED VEHICLE; NO CLEAN IDLE
LABEL REQUIRED
13E-001 STANDARD OIL PAN
105-001 ENGINE MOUNTED OIL CHECK AND
FILL
014-1BX SIDE OF HOOD AIR INTAKE WITH NFPA
COMPLIANT EMBER SCREEN AND FIRE
RETARDANT DONALDSON AIR
CLEANER
124-1E7 DR 12V 275 AMP 40-SI BRUSHLESS PAD
ALTERNATOR WITH REMOTE
BATTERY VOLTAGE SENSE
292-236 (3) DTNA GENUINE, FLOODED
STARTING, MIN 3000CCA, 555RC,
THREADED STUD BATTERIES
290-017 BATTERY BOX FRAME MOUNTED
281-001 STANDARD BATTERY JUMPERS
282-001 SINGLE BATTERY BOX FRAME
MOUNTED LH SIDE UNDER CAB

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
291-017	WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN
289-001	NON-POLISHED BATTERY BOX COVER
293-058	POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH
295-029	MOUNTED OUTBOARD DRIVER SEAT POSITIVE AND NEGATIVE POSTS FOR JUMPSTART LOCATED ON FRAME NEXT TO STARTER
107-048	CUMMINS NATURALLY ASPIRATED 25.9 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE
152-039	GVG, FIRE AND EMERGENCY SERVICE VEHICLES ENGINE WARNING
128-004	CUMMINS INTEBRAKE BRAKE WITH HIGH MED LOW BRAKE
016-1C2	RH OUTBOARD UNDER STEP MOUNTED HORIZONTAL AFTERTREATMENT SYSTEM ASSEMBLY WITH RH B-PILLAR MOUNTED VERTICAL TAILPIPE
28F-002	ENGINE AFTERTREATMENT DEVICE, AUTOMATIC OVER THE ROAD REGENERATION AND DASH MOUNTED REGENERATION REQUEST SWITCH
239-038	11 FOOT 06 INCH (138 INCH+0/-5.9 INCH) EXHAUST SYSTEM HEIGHT
233-017	STANDARD CURVE BRIGHT UPPER STACK(S)
237-1CR	RH CURVED VERTICAL TAILPIPE B-PILLAR MOUNTED ROUTED FROM STEP
23U-001	6 GALLON DIESEL EXHAUST FLUID TANK
30N-003	100 PERCENT DIESEL EXHAUST FLUID FILL
23Y-001	STANDARD DIESEL EXHAUST FLUID PUMP MOUNTING
43X-002	LH MEDIUM DUTY STANDARD DIESEL EXHAUST FLUID TANK LOCATION
43Y-001	STANDARD DIESEL EXHAUST FLUID TANK CAP
242-001	STAINLESS STEEL AFTERTREATMENT DEVICE/MUFFLER/TAILPIPE SHIELD
273-018	HORTON DRIVEMASTER ADVANTAGE ON/OFF FAN DRIVE
276-001	AUTOMATIC FAN CONTROL WITHOUT DASH SWITCH, NON ENGINE MOUNTED
110-003	CUMMINS SPIN ON FUEL FILTER
118-008	COMBINATION FULL FLOW/BYPASS OIL FILTER

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
266-057	1500 SQUARE INCH ALUMINUM RADIATOR
103-039	ANTIFREEZE TO -34F, OAT (NITRITE AND SILICATE FREE) EXTENDED LIFE COOLANT
171-007	GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT
172-001	CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES
270-016	RADIATOR DRAIN VALVE
168-002	LOWER RADIATOR GUARD
155-055	DELCO 12V 39MT HD/OCP STARTER WITH THERMAL PROTECTION AND INTEGRATED MAGNETIC SWITCH

Transmission

342-1KH	ALLISON 4000 EVS AUTOMATIC TRANSMISSION WITH PTO PROVISION
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Transmission Equipment

343-331	ALLISON VOCATIONAL PACKAGE 198 - AVAILABLE ON 3000/4000 PRODUCT FAMILIES WITH VOCATIONAL MODEL EVS
84B-003	ALLISON VOCATIONAL RATING FOR FIRE TRUCK/EMERGENCY VEHICLE APPLICATIONS AVAILABLE WITH ALL PRODUCT FAMILIES
84C-023	PRIMARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 6, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY
84D-023	SECONDARY MODE GEARS, LOWEST GEAR 1, START GEAR 1, HIGHEST GEAR 6, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY
84E-013	S1 PERFORMANCE PRIMARY SHIFT SCHEDULE, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY
84F-012	S1 PERFORMANCE SECONDARY SHIFT SCHEDULE, AVAILABLE FOR 3000/4000 PRODUCT FAMILIES ONLY
84G-009	1800 RPM PRIMARY MODE SHIFT SPEED
84H-009	1800 RPM SECONDARY MODE SHIFT SPEED
84N-200	FUEL SENSE 2.0 DISABLED - PERFORMANCE - TABLE BASED
84U-000	DRIVER SWITCH INPUT - DEFAULT - NO SWITCHES
84V-001	DIRECTION CHANGE ENABLED WITH MULTIPLEXED SERVICE BRAKES - ALLISON 5TH GEN TRANSMISSIONS

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
353-065	VEHICLE INTERFACE WIRING CONNECTOR WITH BLUNT CUTS, AT BACK OF CAB
34C-001	ELECTRONIC TRANSMISSION CUSTOMER ACCESS CONNECTOR FIREWALL MOUNTED
362-824	(2) CUSTOMER INSTALLED CHELSEA 280 SERIES PTO'S
363-010	PTO MOUNTING, LH SIDE AND TOP RH SIDE OF MAIN TRANSMISSION ALLISON
341-018	MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN
345-003	PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED
97G-004	TRANSMISSION PROGNOSTICS - ENABLED 2013
370-011	WATER TO OIL TRANSMISSION COOLER, FRAME MOUNTED
346-003	TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK
35T-001	SYNTHETIC TRANSMISSION FLUID (TES-295 COMPLIANT)

Front Axle and Equipment

400-1BA	DETROIT DA-F-18.0-5 18,000# FL1 71.0 KPI/3.74 DROP SINGLE FRONT AXLE
402-030	MERITOR 16.5X6 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES
403-026	FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING
419-001	CAST IRON OUTBOARD FRONT BRAKE DRUMS
427-001	FRONT BRAKE DUST SHIELDS
409-006	FRONT OIL SEALS
408-001	VENTED FRONT HUB CAPS WITH WINDOW, CENTER AND SIDE PLUGS - OIL
416-022	STANDARD SPINDLE NUTS FOR ALL AXLES
405-002	MERITOR AUTOMATIC FRONT SLACK ADJUSTERS
406-001	STANDARD KING PIN BUSHINGS
536-012	TRW TAS-85 POWER STEERING
539-003	POWER STEERING PUMP
534-015	2 QUART SEE THROUGH POWER STEERING RESERVOIR
40T-002	CURRENT AVAILABLE SYNTHETIC 75W-90 FRONT AXLE LUBE

Specifications for the

**Bidder
Complies**

Yes No

Data Code Description

Front Suspension

620-013 18,000# TAPERLEAF FRONT
SUSPENSION
619-005 MAINTENANCE FREE RUBBER
BUSHINGS - FRONT SUSPENSION
410-001 FRONT SHOCK ABSORBERS

Rear Axle and Equipment

420-103 RT-46-160 46,000# R-SERIES TANDEM
REAR AXLE
421-489 4.89 REAR AXLE RATIO
424-001 IRON REAR AXLE CARRIER WITH
STANDARD AXLE HOUSING
386-075 MXL 18T MERITOR EXTENDED LUBE
MAIN DRIVELINE WITH HALF ROUND
YOKES
388-073 MXL 17T MERITOR EXTENDED LUBE
INTERAXLE DRIVELINE WITH HALF
ROUND YOKES
452-006 DRIVER CONTROLLED TRACTION
DIFFERENTIAL - BOTH TANDEM REAR
AXLES
878-023 (1) INTERAXLE LOCK VALVE, (1)
DRIVER CONTROLLED DIFFERENTIAL
LOCK FORWARD-REAR AND REAR-
REAR AXLE VALVE
87A-001 BLINKING LAMP WITH EACH
INTERAXLE LOCK SWITCH,
INTERAXLE UNLOCK DEFAULT WITH
IGNITION OFF
87B-004 BLINKING LAMP WITH EACH MODE
SWITCH, DIFFERENTIAL UNLOCK WITH
IGNITION OFF, ACTIVE <5 MPH
423-020 MERITOR 16.5X7 Q+ CAST SPIDER CAM
REAR BRAKES, DOUBLE ANCHOR,
FABRICATED SHOES
433-025 FIRE AND EMERGENCY SEVERE
SERVICE NON-ASBESTOS REAR BRAKE
LINING
434-003 STANDARD BRAKE CHAMBER
LOCATION
451-001 CAST IRON OUTBOARD REAR BRAKE
DRUMS
425-002 REAR BRAKE DUST SHIELDS
440-006 REAR OIL SEALS
426-101 WABCO TRISTOP D LONGSTROKE 2-
DRIVE AXLE SPRING PARKING
CHAMBERS
428-003 HALDEX AUTOMATIC REAR SLACK
ADJUSTERS
41T-002 CURRENT AVAILABLE SYNTHETIC
75W-90 REAR AXLE LUBE

Specifications for the

**Bidder
Complies**

Yes No

Data Code Description
42T-001 STANDARD REAR AXLE BREATHER(S)

Rear Suspension

622-1CJ HENDRICKSON RT463 @46,000# REAR
SUSPENSION
621-016 HENDRICKSON RT/RTE - 7.19" SADDLE
431-001 STANDARD AXLE SEATS IN AXLE
CLAMP GROUP
624-009 54 INCH AXLE SPACING
628-005 STEEL BEAMS AND BRONZE CENTER
BUSHINGS WITH BAR PIN ADJUSTABLE
END CONNECTIONS
623-005 FORE/AFT CONTROL RODS

Brake System

490-101 WABCO 4S/4M ABS WITH TRACTION
CONTROL, WITH ATC OFF-ROAD
SWITCH
871-001 REINFORCED NYLON, FABRIC BRAID
AND WIRE BRAID CHASSIS AIR LINES
904-001 FIBER BRAID PARKING BRAKE HOSE
412-001 STANDARD BRAKE SYSTEM VALVES
46D-002 STANDARD AIR SYSTEM PRESSURE
PROTECTION SYSTEM
413-002 STD U.S. FRONT BRAKE VALVE
432-003 RELAY VALVE WITH 5-8 PSI CRACK
PRESSURE, NO REAR PROPORTIONING
VALVE
480-088 WABCO SYSTEM SAVER HP WITH
INTEGRAL AIR GOVERNOR AND
HEATER
483-004 WABCO OIL COALESCING FILTER FOR
AIR DRYER
479-003 AIR DRYER MOUNTED INBOARD ON LH
RAIL
460-058 STEEL AIR TANKS MOUNTED AFT
INSIDE AND/OR BELOW FRAME JUST
FORWARD OF REAR SUSPENSION
477-008 BW DV-2 AUTO DRAIN VALVE WITH
HEATER - WET TANK

Trailer Connections

335-004 UPGRADED CHASSIS MULTIPLEXING
UNIT

Wheelbase & Frame

545-617 6175MM (243 INCH) WHEELBASE
546-101 11/32X3-1/2X10-15/16 INCH STEEL
FRAME (8.73MMX277.8MM/0.344X10.94
INCH) 120KSI
547-001 1/4 INCH (6.35MM) C-CHANNEL INNER
FRAME REINFORCEMENT
552-006 2150MM (85 INCH) REAR FRAME
OVERHANG

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
55W-008	FRAME OVERHANG RANGE: 81 INCH TO 90 INCH
AC8-99D	CALC'D BACK OF CAB TO REAR SUSP C/L (CA) : 177.56 in
AE8-99D	CALCULATED EFFECTIVE BACK OF CAB TO REAR SUSPENSION C/L (CA) : 174.56 in
AE4-99D	CALC'D FRAME LENGTH - OVERALL : 357.83 in
FSS-0LH	CALCULATED FRAME SPACE LH SIDE : 118.38 in
FSS-0RH	CALCULATED FRAME SPACE RH SIDE : 84.35 in
553-001	SQUARE END OF FRAME
550-001	FRONT CLOSING CROSSMEMBER
559-001	STANDARD WEIGHT ENGINE CROSSMEMBER
562-001	STANDARD MIDSHIP #1 CROSSMEMBER(S)
572-001	STANDARD REARMOST CROSSMEMBER
565-001	STANDARD SUSPENSION CROSSMEMBER

Chassis Equipment

556-1E6	14 INCH CHROMED STEEL BUMPER
558-070	REMOVABLE FRONT TOW/RECOVERY DEVICE, STORED ON CHASSIS FRAME
574-001	BUMPER MOUNTING FOR SINGLE LICENSE PLATE
551-007	GRADE 8 THREADED HEX HEADED FRAME FASTENERS
601-017	2D DXF/PDF VEHICLE DRAWING
970-040	TANK BODY 3001 TO 4500 GALLONS
607-001	CLEAR FRAME RAILS FROM BACK OF CAB TO FRONT REAR SUSPENSION BRACKET, BOTH RAILS OUTBOARD

Fuel Tanks

204-215	50 GALLON/189 LITER SHORT RECTANGULAR ALUMINUM FUEL TANK - LH
218-005	RECTANGULAR FUEL TANK(S)
215-005	PLAIN ALUMINUM/PAINTED STEEL FUEL/HYDRAULIC TANK(S) WITH PAINTED BANDS
212-007	FUEL TANK(S) FORWARD
664-001	PLAIN STEP FINISH
205-001	FUEL TANK CAP(S)
122-075	ALLIANCE FUEL FILTER/WATER SEPARATOR
216-020	EQUIFLO INBOARD FUEL SYSTEM

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
202-016	HIGH TEMPERATURE REINFORCED NYLON FUEL LINE

Tires

093-1RJ	MICHELIN X WORKS Z 315/80R22.5 20 PLY RADIAL FRONT TIRES
094-1UY	MICHELIN X MULTI D 11R22.5 16 PLY RADIAL REAR TIRES

Hubs

418-060	CONMET PRESET PLUS PREMIUM IRON FRONT HUBS
450-060	CONMET PRESET PLUS PREMIUM IRON REAR HUBS

Wheels

502-664	ALCOA ULTRA ONE 89U63X 22.5X9.00 10-HUB PILOT 3.12 INSET 10-HD ALUMINUM FRONT WHEELS
505-766	ALCOA ULA18X 22.5X8.25 10-HUB PILOT ALUMINUM DISC REAR WHEELS
524-022	POLISHED DISC SIDE FRONT WHEELS WITH DURA-BRIGHT FINISH
525-023	POLISHED OUTER (DISHED SIDE) REAR WHEELS WITH OUTER ONLY DURA- BRIGHT FINISH
496-011	FRONT WHEEL MOUNTING NUTS
497-011	REAR WHEEL MOUNTING NUTS

Cab Exterior

829-1A2	114 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL CAB
650-008	AIR CAB MOUNTING
648-002	NONREMOVABLE BUGSCREEN MOUNTED BEHIND GRILLE
667-004	FRONT FENDERS SET-BACK AXLE
754-017	BOLT-ON MOLDED FLEXIBLE FENDER EXTENSIONS
678-018	LH AND RH EXTERIOR GRAB HANDLES WITH SINGLE RUBBER INSERT
645-002	BRIGHT FINISH RADIATOR SHELL/HOOD BEZEL
646-042	STATIONARY BLACK GRILLE WITH BRIGHT ACCENTS
65X-003	CHROME HOOD MOUNTED AIR INTAKE GRILLE
644-004	FIBERGLASS HOOD
690-002	TUNNEL/FIREWALL LINER
727-802	FACTORY PREP DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS WITH DUAL LANYARDS HORNS SHIP LOOSE FOR PDI INSTALL
726-001	SINGLE ELECTRIC HORN
728-002	DUAL HORN SHIELDS

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
575-001	REAR LICENSE PLATE MOUNT END OF FRAME
312-067	HALOGEN COMPOSITE HEADLAMPS WITH BRIGHT BEZELS
302-047	LED AERODYNAMIC MARKER LIGHTS
311-012	DAYTIME RUNNING LIGHTS - LOW BEAM ONLY
294-027	WIRING ONLY WITH SEPARATE STOP AND TURN LIGHT CIRCUITS TO END OF FRAME FOR CUSTOMER FURNISHED LAMPS
300-015	STANDARD FRONT TURN SIGNAL LAMPS
469-014	AUTOMATIC ON/OFF, ENGINE COMPARTMENT, HOOD ACTIVATED WORK LIGHT WITH MANUAL OVERRIDE
744-1BC	DUAL WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LH AND RH REMOTE
797-001	DOOR MOUNTED MIRRORS
796-001	102 INCH EQUIPMENT WIDTH
743-204	LH AND RH 8 INCH BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS
729-001	STANDARD SIDE/REAR REFLECTORS
677-055	RH AFTERTREATMENT SYSTEM CAB ACCESS WITH POLISHED DIAMOND PLATE COVER
768-043	63X14 INCH TINTED REAR WINDOW
661-003	TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS
654-027	RH AND LH ELECTRIC POWERED WINDOWS, PASSENGER SWITCHES ON DOOR(S)
663-013	1-PIECE SOLAR GREEN GLASS WINDSHIELD
659-019	2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED

Cab Interior

055-002	INTERIOR CONVENIENCE PACKAGE
707-1AK	OPAL GRAY VINYL INTERIOR
706-026	MOLDED PLASTIC DOOR PANEL WITHOUT VINYL INSERT WITH ALUMINUM KICKPLATE LOWER DOOR
708-026	MOLDED PLASTIC DOOR PANEL WITHOUT VINYL INSERT WITH ALUMINUM KICKPLATE LOWER DOOR
772-006	BLACK MATS WITH SINGLE INSULATION

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
785-998	NO DASH MOUNTED ASH TRAYS AND LIGHTER
691-014	FORWARD ROOF MOUNTED CONSOLE WITH UPPER STORAGE COMPARTMENTS AND ADDITIONAL CENTER COMPARTMENT WITHOUT NETTING
694-010	IN DASH STORAGE BIN
742-007	(2) CUP HOLDERS LH AND RH DASH
680-006	GRAY/CHARCOAL FLAT DASH
860-004	SMART SWITCH EXPANSION MODULE
700-002	HEATER, DEFROSTER AND AIR CONDITIONER
701-001	STANDARD HVAC DUCTING
703-005	MAIN HVAC CONTROLS WITH RECIRCULATION SWITCH
170-019	STANDARD HEATER PLUMBING WITH BALL SHUTOFF VALVES
130-041	VALEO HEAVY DUTY A/C REFRIGERANT COMPRESSOR
702-002	BINARY CONTROL, R-134A
739-034	PREMIUM INSULATION
285-013	SOLID-STATE CIRCUIT PROTECTION AND FUSES
280-007	12V NEGATIVE GROUND ELECTRICAL SYSTEM
324-011	DOMED DOOR ACTIVATED LH AND RH, DUAL READING LIGHTS, FORWARD CAB ROOF
657-001	DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME
78G-002	KEY QUANTITY OF 2
655-005	LH AND RH ELECTRIC DOOR LOCKS
284-045	(2) 12 VOLT POWER RECEPTACLES MOUNTED IN DASH
756-1E7	SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT WITH NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR
760-1E7	SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION PASSENGER SEAT WITH NFPA 1901-2009/2016 COMPLIANT SEAT SENSOR
711-004	LH AND RH INTEGRAL DOOR PANEL ARMRESTS
758-023	GRAY VINYL DRIVER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST
761-022	GRAY VINYL FRONT PASSENGER SEAT COVER WITH GRAY CORDURA CLOTH BOLSTER AND HEADREST

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
763-105	NFPA 1901-2009 HIGH VISIBILITY ORANGE SEAT BELTS
532-002	ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN
540-015	4-SPOKE 18 INCH (450MM) STEERING WHEEL
765-002	DRIVER AND PASSENGER INTERIOR SUN VISORS

Instruments & Controls

732-003	WOODGRAIN DRIVER INSTRUMENT PANEL
734-003	WOODGRAIN CENTER INSTRUMENT PANEL
87L-001	ENGINE REMOTE INTERFACE WITH PARK BRAKE INTERLOCK
870-001	BLACK GAUGE BEZELS
486-001	LOW AIR PRESSURE INDICATOR LIGHT AND AUDIBLE ALARM
840-002	2 INCH PRIMARY AND SECONDARY AIR PRESSURE GAUGES
198-002	INTAKE MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS
721-001	97 DB BACKUP ALARM
149-013	ELECTRONIC CRUISE CONTROL WITH SWITCHES IN LH SWITCH PANEL
156-007	KEY OPERATED IGNITION SWITCH AND INTEGRAL START POSITION; 4 POSITION OFF/RUN/START/ACCESSORY
811-042	ICU3S, 132X48 DISPLAY WITH DIAGNOSTICS, 28 LED WARNING LAMPS AND DATA LINKED
160-038	HEAVY DUTY ONBOARD DIAGNOSTICS INTERFACE CONNECTOR LOCATED BELOW LH DASH
844-001	2 INCH ELECTRIC FUEL GAUGE
148-073	ENGINE REMOTE INTERFACE FOR REMOTE THROTTLE
163-004	ENGINE REMOTE INTERFACE CONNECTOR IN ENGINE COMPARTMENT
856-001	ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE
864-001	2 INCH TRANSMISSION OIL TEMPERATURE GAUGE
830-017	ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY
372-051	CUSTOMER FURNISHED AND INSTALLED PTO CONTROLS
49B-004	ELECTRONIC STABILITY CONTROL
852-002	ELECTRIC ENGINE OIL PRESSURE GAUGE
679-998	NO OVERHEAD INSTRUMENT PANEL

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
786-119	NFPA VEHICLE DATA RECORDER AND SEATBELT DISPLAY
746-137	AM/FM/WB WORLD TUNER RADIO WITH BLUETOOTH, USB AND AUXILIARY INPUTS, J1939
747-001	DASH MOUNTED RADIO
750-002	(2) RADIO SPEAKERS IN CAB
753-001	AM/FM ANTENNA MOUNTED ON FORWARD LH ROOF
74D-002	RADIO WIRING WITH POWER CUTOFF WHEN VEHICLE IN REVERSE GEAR
810-027	ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE, WITHOUT ODOMETER
817-001	STANDARD VEHICLE SPEED SENSOR
812-001	ELECTRONIC 3000 RPM TACHOMETER
813-998	NO VEHICLE PERFORMANCE MONITOR
162-002	IGNITION SWITCH CONTROLLED ENGINE STOP
264-032	(2) OVERHEAD MOUNTED LANYARD CONTROLS: (1) OFFICER AIR HORN AND (1) DRIVER AIR HORN
836-015	DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY
660-008	SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY
304-001	MARKER LIGHT SWITCH INTEGRAL WITH HEADLIGHT SWITCH
882-009	ONE VALVE PARKING BRAKE SYSTEM WITH WARNING INDICATOR
299-013	SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, WASHER/WIPER AND HAZARD IN HANDLE
298-039	INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH HAZARD LAMPS OVERRIDING STOP LAMPS

Design

065-000 PAINT: ONE SOLID COLOR

Color

980-5Z2 CAB COLOR A: L3262EY RADIANT FIRE PRL MET ELITE EY
 986-020 BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT
 963-003 STANDARD E COAT/UNDERCOATING

Certification / Compliance

996-001 U.S. FMVSS CERTIFICATION, EXCEPT SALES CABS AND GLIDER KITS

Secondary Factory Options

Specifications for the

**Bidder
Complies**

Yes No

Data Code	Description
998-032	CORPORATE PDI CENTER OPTION INSTALLATION/MODIFICATION ONLY
923-005	GEN 2, DEDICATED PATHWAY, ROUTING AND CLIPPING