



COUNTY OF SAN LUIS OBISPO
DEPARTMENT OF GENERAL SERVICES

COUNTY GOVERNMENT CENTER • SAN LUIS OBISPO, CALIFORNIA 93408 • (805) 781-5200

DUANE P LEIB, DIRECTOR

**INVITATION TO BID #3403-06
TYPE I FIRE ENGINE**

September 1, 2006

The County of San Luis Obispo is currently soliciting bids for a Type I Fire Engine as noted.

Each bid shall specify each and every item as set forth in the attached specifications. Any and all exceptions must be clearly stated in the bid. Failure to set forth any item in the specifications shall be grounds for rejection. The County of San Luis Obispo reserves the right to reject all bids and to waive any informalities.

Please submit two (2) copies of your bid on the attached form. They must be received at the office of the General Services Department no later than 4:00 p.m., September 28, 2006.

Any and all comments and suggestions are sincerely encouraged prior to the bid opening.

If you have any questions about the bid process, please contact me at (805) 781-5906. For technical questions, call Rick Giubbini at (805) 543-4244.

BARBARA ADAMS
Buyer - Central Services Division
beadams@co.slo.ca.us

TO: ALL PROSPECTIVE BIDDERS
SUBJECT: LOCAL BIDDERS PREFERENCE

The County of San Luis Obispo has established a local vendor preference. All informal and formal bids for contracts will be evaluated with a 5% preference for local vendors. Note the following exceptions:

1. Those contracts which State Law requires be awarded to the lowest responsible bidder.
2. Public works construction projects.

A "local" vendor will be approved as such when, 1) It conducts business in an office with a physical location within the County of San Luis Obispo; 2) It holds a valid business license issued by the County or a city within the County; and 3) Business has been conducted in such a manner for not less than six (6) months prior to being able to receive the preference.

As of March 3, 1994 individual County Buyers evaluate bids considering the local vendor preference described above. The burden of proof will lie with bidders relative to verification of "local" vendor preference. Should any questions arise, please contact a buyer at (805) 781-5200. All prospective bidders are encouraged to quote the lowest prices at which you can furnish the items or services listed in County bids.

| | YES | NO |
|---|------------|-----------|
| Do you claim local vendor preference? | | |
| Do you conduct business in an office with a physical location within the County of San Luis Obispo? | | |
| Business Address: _____ _____ | | |
| Years at this Address: _____ | | |
| Does your business hold a valid business license issued by the County or a City within the County? | | |
| Name of Local Agency which issued license: _____ | | |

Business Name: _____

Authorized Individual: _____ Title: _____

Signature: _____ Dated: _____

TO: ALL PROSPECTIVE BIDDERS

SUBJECT: POLICY ON PURCHASING PRODUCTS MADE WITH OR CONTAINING CHLOROFLUOROCARBONS (CFC's)

Summary

Many products contain chlorofluorocarbons (CFC's), a known depleter of ozone in the atmosphere. Under the U.S. Clean Air Act and the Montreal Protocol on Substances That Deplete the Ozone Layer, CFC production for use in industrialized nations is to be totally phased out by January 1, 1996. There are still many products on the market that contain CFC's or are made with CFC's. The Department of General Services, purchasing staff must identify products made with or containing CFC's and purchase alternative products whenever practical and possible.

Policy

To this end, it shall be the policy of the County of San Luis Obispo that all bidders, who wish to do business with the County are required to identify all products that contain CFC's or use CFC's in the manufacturing or shipping processes. Bidders are required to identify alternative products that do not use CFC's, for possible purchase by the County.

Bidder Response

| | YES | NO |
|--|------------|-----------|
| Do any products offered herein contain CFC's or use CFC's in the manufacturing or shipping process? | | |
| If yes, please offer an alternative product by copying bid forms and submitting an alternate bid. Will you offer an alternate? | | |
| Please provide any other information that may be helpful to the County. Attachments are acceptable. | | |

Bidder: _____

GENERAL CONDITIONS AND INSTRUCTIONS

1. All bids submitted by Seller to Purchaser should be submitted upon the attached bidder's form, completed and signed, (only typewritten or ink shall be accepted with no erasures or corrections unless properly authenticated by signature) in accordance with the instructions contained herein.
2. The issuance of this bid request creates no obligation on the part of the County and the County reserves the unconditional right at its option to either reject all bids or waive any irregularities or informalities therein. Each bid shall be in a separate sealed envelope with the bid number, name of bidder, title of the bid, date and time due showing on the outside of the envelope.
3. All prices must be firm for 45 days from the date of the bid opening and be inclusive. Upon award, prices will be in effect for the term of the contract.
4. Prompt payment discounts of 20 days or longer will only be considered when comparing bids, however, if you offer any prompt payment discounts, please indicate this on your bid.
5. Awards will be made to realize the greatest savings to the County and may not necessarily be the lowest bid especially where services are of the utmost importance.
6. Submission of a signed bid will be interpreted to mean that the bidder has thereby agreed to all conditions, instructions, descriptions and specifications contained herein.
7. All materials included in the contract shall be in compliance with all Federal and State OSHA laws.
8. All applicable City, State, and Federal taxes and fees are to be included in the proposal.
9. The only terms that will be honored are those terms included in general and special conditions and instructions, purchase order or other documents issued by the County.
10. In the event of any conflicts or ambiguities between these instructions and State or Federal laws, regulations or rules, then the latter shall prevail.
11. Only one bid will be accepted per vendor.
12. Bidders may withdraw their bid either personally, by written request, or by telegraphic request confirmed in the manner specified above at any time prior to the scheduled closing time for receipt of bids. No bidder may withdraw their bid after the time set for the opening.
13. All time limits stated are of the essence and must be complied with. Any bids received after closing time stipulated will be returned unopened.
14. All bids must be submitted in a manner so they can be readily hole punched and placed in a standard legal size file folder.

15. The County may make partial payments after a substantial portion of the merchandise has been delivered. On all items, a 10% retention will be withheld until all merchandise has been accepted.
16. Brand names are used to establish a level of quality only. Any alternates must be approved five (5) days prior to the bid opening date, by the Central Services Manager, who will have the sole right to determine this. If an alternate is submitted without going through the above- described process, the County will have the sole right to decide whether or not an alternate is acceptable.
17. Vendor agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin and that it will comply with the "Contractor's Agreements" provisions of Presidential Executive Order No. 11246.
18. **NO FAXED** Bids will be accepted.
19. Return bid by September 28, 2006 at 4:00 p.m. to:

COUNTY OF SAN LUIS OBISPO
DEPARTMENT OF GENERAL SERVICES
BARBARA ADAMS, BUYER
1087 SANTA ROSA STREET
SAN LUIS OBISPO, CALIFORNIA 93408

County of San Luis Obispo Invitation to Bid #3403-06 September 1, 2006 Page 6
TYPE I FIRE ENGINE

The undersigned agrees to:

Deliver **F.O.B. to County of San Luis Obispo, CDF/San Luis Obispo Fire Department, 635 N. Santa Rosa St., San Luis Obispo CA 93405** the TYPE I FIRE ENGINE itemized below, and in accordance with Specifications attached. All equipment to be new and unused of the latest model year and all attachments shall be designated to be compatible with the model proposed. Equipment shall be delivered, serviced and ready to operate.

All equipment and accessories shall comply with the applicable State and Federal Codes, Regulations and Requirements.

Warranty _____

DESCRIPTIVE LITERATURE WITH COMPLETE SPECIFICATIONS MUST ACCOMPANY ALL BIDS. DEVIATIONS TO ATTACHED SPECIFICATIONS MUST BE CLEARLY INDICATED. NO DEVIATIONS UNLESS SPECIFIED IN SPECIFICATION SHEET OR BELOW.

TERMS OF SALE _____

DATE OF DELIVERY _____ **GRAND TOTAL:** _____

Prompt payment discounts of less than twenty (20) days cannot be considered.

CURRENT PURCHASE:

| Item | Qty. | Unit | Description | Unit Price | Extended Price |
|----------------------------|------|------|---|------------|----------------|
| 1 | 1 | Each | Type I Fire Engine in accordance with the attached specifications. Make, Model & Year of Mfg. Bidding: _____ | | |
| 7.25% California Sales Tax | | | | | |
| GRAND TOTAL | | | | | |

Authorized Official Name (Print) _____

Authorized Official Title (Print) _____

Signature _____

Firm Name _____

Address _____

City _____ State _____ Zip Code _____

Telephone _____ FAX _____

Federal Taxpayer ID# _____

Individual/Sole Proprietor Corporation Partnership Other

**BIDS MUST BE RECEIVED BY 4:00 P.M., SEPTEMBER 28, 2006 AND
WILL BE OPENED IN THE OFFICE OF GENERAL SERVICES
Bid #3403-06**

CDF/SAN LUIS OBISPO COUNTY FIRE DEPARTMENT

Type I Specifications

San Luis Obispo County Fire Department
2006 Fire Engine Purchase

INSTRUCTIONS

The attached pages comprise the Detailed Specifications for the fire apparatus to be bid. Located next to each specification are two letters, a "Y" for "YES" and the other an "N" for "NO." For each specification, circle the appropriate letter to indicate whether or not the apparatus being bid fully meets the exact specification and return a copy of this document with the bid proposal.

For every specification for which "NO" is indicated, list on the separate sheet provided for this purpose, what is being proposed in lieu of compliance with the exact specification (referred to herein as "exceptions"). Proposed exceptions will be evaluated on the basis of quality, performance, and ability to meet the County's needs.

Failure to respond to each specification in the manner described above shall be grounds to reject the bid as non-responsive.

No exceptions will be considered for those specifications so stating. Exceptions will be considered for all other specifications. The County of San Luis Obispo reserves all rights to accept or not accept any proposed exception.

Failure to meet a specification for which conformance is indicated will under no circumstances relieve the bidder from conformity to the specification.

Clarification of specifications to bidders, if necessary, will be made in writing upon receipt of request, no later than ten (10) days prior to bid opening, with copies being sent to all other prospective bidders. Clarification requests must be received no later than fifteen (15) days prior to bid opening date in the office of the General Services Department.

Change authorizations after the issuance of a purchase order shall be made in writing to Rick Giubbini, Battalion Chief San Luis Obispo County Fire Department, (or his written designee), clearly indicating the deviation and cost or savings to the purchaser. In no case shall changes be made without his consent. Changes mandated by Federal or State standards and associated costs after the date of the purchase order shall be the responsibility of the purchaser.

NFPA PAMPHLET 1901-2003

The National Fire Protection Association Pamphlet #1901, 2003 revision, is hereby adopted and made a part of these specifications, the same as if they were written out in full detail, insofar as they apply with the exception of the section dealing with "Equipment Recommended for Various Types of Apparatus". Bidders shall provide the equipment requested herein and the buyer shall supply the rest before the apparatus is put into service.

Complies Y N

DOT AND FMVSS

The vehicle shall comply with all state and federal transportation regulations.

Complies Y N

GENERAL

The following specifications are a detailed description of a San Luis Obispo County Fire department fire engine (pumper). The basic description of the vehicle is:

Four Door custom cab and chassis built specifically for fire service use.

Seating for up to 6 fire fighters.

Operating (pumping) performance at 1500 gpm rated capacity up to 4000 foot elevation, standard day conditions.

Operating (driving) performance on grades up to 35%.

Approach and departure angles; 20 degrees (vehicle fully laden).

Cabinetry layout: One (1) transverse (through) compartment between the rear of cab and the fire pump module. Four (4) horizontally hinged upper compartments, two on each side of the engine. Four vertically hinged lower compartments, one in front and one behind the wheels on each side of the engine. A large, lower compartment at the rear of the engine with a smaller, deep (through the water tank) compartment above for ladder storage.

Hosebed storage for up to 1000' of 4" hose and 1000' of 2 1/2" hose.

500 gallon water tank.

Pre-plumbed foam system and tank.

Diesel auxiliary pump for "pump and roll" capability.

Complies Y N

OVERALL HEIGHT

The overall height of the vehicle should not exceed 116" from the ground to the top of the light bar. Other than the light bar and the air conditioning condenser, nothing shall be higher than the roof of the cab.

The vehicle shall be built so that the cab roof, upper dunnage area, and rear hose bed covers all form an even roofline and there are no protrusions above it that can snag on low hanging branches, etc.

Complies Y N

OVERALL LENGTH

The overall length of the vehicle should not exceed 337". This O.A.L. includes body extremities (bumpers).

Complies Y N

EXCEPTION/NO EXCEPTION ITEMS

If the bidder's proposal differs from this specification on any item(s), the bidder must duly note the item(s) in the same order that they have been presented in this specification in order to minimize the department's time crosschecking multiple proposals.

The following are a list of items for which no exception is allowed:

Cab and Chassis section:

- Flat roof, four door cab for fire service use.
- 170" wheelbase.
- 20 degree approach and departure angle.
- 43 degree steering cut angle (minimum).
- Caterpillar C-9 motor.
- Front skid plate with 20 degree approach angle.
- Raise muffler for ground clearance.
- Manual cab lift provisions

Pump and build-up section:

- 1500 gpm single stage pump.
- Manually controlled pressure relief valve system on the discharge side of the pump.
- Thermal relief valve system.
- Bidders to provide auxiliary pump installation details.

- No chrome plated pyrolite/aluminum caps and plugs for discharges or intakes.
- Lifetime warranty on water/foam tanks as they are installed.
- Glass face, anti-vibration gauges.
- Welded, double panel construction on compartment doors.
- Hansen door handles and Eberhard latches/catch pins.
- Key locks on compartment and cab doors.
- No direct contact between the aluminum body structure and the stainless steel fenders.
- Multi-plex electrical system.
- Exhaust tip compatible with a Plymo-vent exhaust extraction system.

Complies Y N

SHOP ORDER/BID SPECIFICATION PRECEDENCE

If there is a discrepancy between the manufacturer's shop order and the department's bid specification, the department's bid specification shall take precedence and it shall be at the discretion of the department.

Complies Y N

Cab and Chassis

CAB AND CHASSIS

The cab and chassis shall be a cab forward, short/medium four door, flat roof, aluminum tilt cab, built specifically for the fire service. **No Exception.**

Complies Y N

MINIMUM-ONE YEAR CHASSIS WARRANTY

The chassis manufacturer shall warrant to the original purchaser the custom fire truck chassis for a period of not less than twelve (12) months with the exception of the actual fire apparatus chassis frame, which shall carry a lifetime warranty. The warranty period shall begin on the date the vehicle is delivered to the original purchaser. The warranty may include conditional items which shall be listed in the detailed warranty document that shall be provided upon request.

Complies Y N

CAB CORROSION PROTECTION

The cab shall be protected by a low VOC corrosion preventive. When applied to metal surfaces a barrier film shall be formed thereby extending the useful life of treated metal.

Complies Y N

CAB WARRANTY

The cab shall be warranted for a period of ten (10) years. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

Complies Y N

FRAME

The frame side rails shall be channel type, 110,000 psi high strength steel, with an RBM of 1,827,573 in. lbs. and a minimum section modulus of 16 cu. in.

A minimum of seven (7) fully gusseted bolted assembly crossmembers shall be installed using grade "8" flanged head bolts and flanged lock nuts.

The area between the axle suspension hangers shall be free of any holes or fasteners in the flanges. No welding shall be incorporated in attachment of components. Any frame dimensional cutting shall be by a plasma cutter. All relief areas shall be cut in at a 30 degree angle with a 2" radius at intersection points with edges ground smooth to prevent a stress focal point.

The frame shall carry a lifetime warranty to the original purchaser.

Complies Y N

PAINT FRAME AND RUNNING GEAR - JOB COLOR

The frame, undercarriage and running gear including driveline shall be finish painted job color. The paint shall be applied before the air lines and electrical wiring is installed.

Complies Y N

CHASSIS WHEELBASE

The chassis wheelbase shall be 170" (+/- 1"). **No Exception.**

Complies Y N

FUEL TANK

The fuel tank shall have a capacity of fifty (50) US gallons and be made of 12-gauge phosphate coated steel with chromate epoxy exterior finish.

The fuel tank shall be mounted under the frame, behind the rear axle in a manner that allows the tank to be easily dropped and removed for service purposes. Strap mounting studs through the frame rail, hidden behind the body shall not be acceptable.

The tank shall have vent port to facilitate rapid filling without "blow-back". A roll over ball check vent shall be installed.

Dual drawtubes and dual sender ports shall be installed. 2" NPT fill ports shall be available for right and left hand fill. A 1/2" NPT drain plug shall be provided in the bottom of the tank.

Steel wire braid reinforced rubber supply and return hoses with reusable fittings shall be installed tank to engine.

Complies Y N

FRONT BUMPER

A painted steel front bumper shall be provided that shall be 8" high at the front edge and tapered to 12.75" high at the back edge. The bumper shall be extended 12.5" ahead of the cab.

There shall be a minimum 20 degree angle of approach with the bumper design. **No Exception.**

Complies Y N

FRONT BUMPER APRON WITH HOSEWELL

A painted steel plate gravel shield, (apron) and hose well shall be installed between the bumper and the front face of the cab (between the frame rails). The hose well shall have a capacity for 50 ft of 1-3/4 hose and nozzle. It shall have holes in the bottom that allow self-draining and Dri-Dek flooring.

The top surface of the apron shall be plated with bright aluminum treadplate to match the latching cover on top of the hose well.

Complies Y N

CHROME PLATED TOW EYES

Two chrome plated tow eyes shall be installed thru the bumper. The eyes shall be fabricated from 3/4" thick #1020 ASTM-A36 hot rolled steel. The inside diameter of the eye shall be 2.00" and have a chamfered edge.

Complies Y N

AIR HORNS

Dual Grover Stutter tone 21" air horns shall be recessed in the front bumper on the right hand side. A 3/8" airline "teed" equal distance from each horn shall be installed.

Complies Y N

AIR HORN ACTUATION

The steering wheel horn button and floor switch for the driver and a right side officer's push button switch located on the dash shall accomplish air horns actuation.

Complies Y N

ELECTRONIC SIREN

A Federal EQ2B electronic siren amplifier/DSP with a digital output controller shall be mounted in the cab. The EQ2B siren shall create the traditional "Q" siren sound but it also able to sound Welp, Wail, Yelp, digital Air Horn, simulated "Q" siren brake switch and PA radio broadcast.

Complies Y N

BUMPER MOUNTED 200 WATT SPEAKER

One (1) Federal BP200-EF, 200 watt speaker shall be recessed in the front bumper.

Complies Y N

SIREN ACTUATION

Electronic siren actuation shall be accomplished drivers side foot switch and an officer's push button switch located on the dash.

Complies Y N

FRONT AXLE

The front axle shall be an ArvinMeritor FL-951 tubular design type front axle with a 1.00" drop. It shall have a capacity of 18,000 lbs. GAWR.

The springs shall be elliptical type with a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall meet or exceed the capacity of the front axle.

The hydraulic power assist steering gear shall be a TRW TAS-85. A Vickers hydraulic power steering pump shall be gear driven from the engine. The steering ratio shall be 23.3:1 and have 6.2 turns stop to stop.

Complies Y N

FRONT AXLE CRAMP ANGLE

The front axle inside turn/cramp angle shall be a minimum of 43 degrees turning to the right and left. **No Exception.**

Complies Y N

CHASSIS ALIGNMENT

The chassis frame rails shall be crosschecked for length and squareness. Front and rear axles shall be laser aligned. Tires and wheels shall be aligned and toe-in set on front tires at the chassis manufacturer's facility.

The completed apparatus should be rechecked for proper alignment after the chassis has been fully loaded.

Complies Y N

FRONT TIRES

The front tires shall be Michelin 315/80R 22.5 20-ply "L" tubeless radial PXZA1 highway tread with 22.5 x 9.0 ten (10) stud disc wheels. The tires and wheels shall be rated at 18,000 lbs.

Complies Y N

ALUMINUM FRONT WHEELS

The front wheels shall be Alcoa or Accuride, hub piloted, polished aluminum 10-stud disc 22.5 x 9.00, complete with bright nut covers and hubcaps. The aluminum wheels shall have a five (5) year warranty from the manufacturer.

Complies Y N

OIL LUBRICATED FRONT WHEEL BEARINGS

The front axle wheel bearings shall be oil lubricated with an oil level visual inspection window.

Complies Y N

FRONT SHOCK ABSORBERS

Two (2) nitrogen gas charged shock absorbers shall be part of the front axle suspension. The shock absorbers shall have a five (5) year warranty.

Complies Y N

STEERING COLUMN AND WHEEL

The steering column shall be a tilt and telescopic. The steering wheel shall be covered with black absorbite padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch on turn lever.

Complies Y N

FRONT BRAKES

The front brakes shall be 16.5" x 6" "S" cam type with automatic slack adjusters.

Complies Y N

REAR AXLE

The rear axle shall be a Meritor model #RS-24-160 with single reduction gearing and shall have a rated capacity of 24,000 lbs. GAWR. The rear axle shall have Stemco brand oil seals.

The rear axle shall have the Arvin/Meritor five (5) year warranty coverage upon registration.

Complies Y N

TOP SPEED

The top speed of the vehicle shall be approximately 75 mph at governed engine rpm.

Complies Y N

DIFFERENTIAL LOCK

The Rockwell RS series rear axle shall have a driver controlled differential lock. This feature shall allow the main differential to be locked and unlocked when the vehicle is stationary to provide maximum wheel end traction.

Complies Y N

REAR BRAKES

Rear brakes shall be 16.5" x 7" "S" cam type with automatic slack adjusters.

Complies Y N

ABS BRAKE SYSTEM

A Meritor "WABCO" anti-lock braking system shall be installed on the front and rear Arvin Meritor axles.

System design shall incorporate a diagonal circuit electronically controlled through a sensor and tone ring on each wheel.

A dash mounted anti-lock lamp shall be provided to notify the driver of a system malfunction.

A momentary test switch shall be installed to test the system for diagnostic code.

Complies Y N

REAR TIRES

The rear tires shall be Michelin 11R 22.5 16PR "H" tubeless radial XDN tread, rated 24,000 lbs.

Complies Y N

ALUMINUM REAR WHEELS

The rear wheels shall be Alcoa or Accuride hub piloted, polished aluminum 10-stud disc 22.5 x 8.25, complete with bright nut covers and rear axle hub covers. The aluminum wheels shall have a five (5) year warranty from the manufacturer.

Complies Y N

OIL LUBRICATED REAR WHEEL BEARINGS

The rear axle shall have oil lubricated wheel bearings.

Complies Y N

REAR SUSPENSION

The rear suspension shall be a vari-rate, captive slipper type, with 57.5" x 3" springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

The spring capacity must meet or exceed the capacity of the rear axle.

Complies Y N

STAINLESS STEEL WHEEL TRIM KIT

The front and rear wheels shall have stainless steel lug nut covers. The front axles shall be covered with stainless steel baby moons with hole to view oil seal window. The rear axles shall be covered with foam mounted stainless steel high hats.

The lug nut covers, baby moons and high hats shall be American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel meeting D.O.T. certification standards. All stainless steel baby moons and high hats shall carry a lifetime warranty.

Complies Y N

SINGLE REAR AXLE AIR BRAKE SYSTEM

A rapid build-up air brake system shall be provided. It shall include three (3) air reservoirs with a total minimum of 4,000 cu. in. air capacity.

A parking brake on the spring-actuated chambers on the rear axle brakes with a push-pull valve on the instrument panel shall be installed.

The rear axle spring brakes are to automatically apply in case of air pressure drop below 60 psi with a mechanical means for releasing the spring brake chambers.

Complies Y N

FRONT WHEEL SERVICE BRAKE LOCK-UP SYSTEM

A front wheel service brake lock-up system shall be installed which will apply both the front air and rear spring brakes upon application of the PP-1 push-pull valve in the cab.

Complies Y N

AIR DRYER

A WABCO 1200 System Saver spin-on desiccant air dryer with an automatic heated moisture ejector shall be installed in the air brake system.

Complies Y N

MANUAL DRAINS ON AIR TANKS

Manual drains shall be installed on all reservoirs of the air brake system.

Complies Y N

NYLON AIR LINE TUBING

A dual air system plumbed with color-coded reinforced nylon tubing air lines shall be installed. The primary (rear) brake line shall be green; the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall be fiber reinforced neoprene covered hoses.

Complies Y N

ADDITIONAL AIR RESERVOIR

An additional 1200 cu. in. air reservoir shall be installed and isolated to prevent depletion of the air to the air brake system and to act as a supply tank for operating air equipment. It shall be plumbed with a 90-psi pressure protection valve on the reservoir supply side.

Complies Y N

AIR COMPRESSOR

The air compressor on the engine shall be capable of producing a minimum of 15 cfm at 1250 engine rpm. It shall be gear driven, engine oil pressure lubricated and cooled by the engine cooling system. The air compressor shall have a 5-year warranty.

Complies Y N

ENGINE

A Caterpillar C9, turbocharged, charge air cooled engine shall be provided. **No Exception.**

TYPE:

In-Line six (6) cylinder, 4 cycle

HORSEPOWER:

400 hp at 2100 rpm / Governed at 2100 rpm

TORQUE:

1100 lb. ft. @ 1400 rpm

DISPLACEMENT:

537 cu. in.

GOVERNOR:

Electronic

A wiring harness shall be supplied with a drop out at the back of the cab. The harness shall include a connector to allow an optional harness for the pump panel to be plugged into it. Circuits shall be provided for tachometer, oil pressure, engine temperature, hand throttle, high idle and PSG system. A circuit for J1939 data link shall also be provided at the dropout.

A spin on engine coolant filter with shut-off valve shall be provided.

An engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge shall be part of the engine's lubrication system.

Complies Y N

ENGINE WARRANTY

The Caterpillar engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

Complies Y N

FUEL FILTER - CATERPILLAR ENGINE

A spin-on type fuel filter(s) shall be installed on the Caterpillar engine.

Complies Y N

EXHAUST SYSTEM

The exhaust system shall be installed under the frame with the discharge to the right side forward of the rear tires.

The muffler and .065 wall aluminized steel exhaust tubing supported by bolted on frame brackets shall be installed.

Stainless steel flex tubing is to be installed between exhaust pipe and muffler. System joints shall be connected with lapping band clamps.

The muffler shall be mounted in such a fashion as to maximize ground clearance in the middle of the vehicle. **NO EXCEPTION.**

Complies Y N

TAIL PIPE CHROME EXTENSION

There shall be a chrome extension provided on the chassis exhaust that is compatible with Plymo-Vent exhaust extraction systems. **NO EXCEPTION.**

The exhaust pipe shall terminate on the right hand side of the chassis, forward of the rear tires and be installed with a stainless steel band clamp.

Complies Y N

AIR CLEANER

The air cleaner shall be Farr #62891-001 dry type with a replaceable element, it shall have an outside air intake with an ember separator filter and an indicator light in the warning light cluster to show when the air cleaner element requires replacement.

Complies Y N

EXHAUST SYSTEM

A Donaldson "Silent Partner" aluminized muffler shall be supplied to help lower the vehicles engine noise level. The exhaust system shall be installed under the frame with the discharge to the right side forward of the rear tires. Stainless steel flex tubing is to be installed between exhaust pipe and muffler. System joints shall be connected with 4" lapping stainless steel band clamps. There shall be a four (4) year warranty provided by the manufacturer.

Complies Y N

SKID PLATE/BRUSH GUARD

A painted 1/4" steel skid plate shall be supplied by the chassis manufacturer to protect the radiator, cooling lines and the engine air intake system. The skid plate and under carriage protection shall not interfere with the 20 degree minimum approach angle. **No Exception.**

Complies Y N

COOLING SYSTEM FAN

The engine cooling system shall incorporate a thermostatically controlled, clutched fan.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy.

The fan will automatically lock up when the vehicle is placed in pumping mode.

The fan shall be installed on the engine and include a shroud. Recirculation shields shall be installed to insure that air that has passed through the radiator is not drawn through it again.

Complies Y N

COOLING SYSTEM

The cooling system shall have sufficient capacity to keep the engine and transmission properly cooled under all conditions of road and pumping operations.

The radiator shall be full de-aeration and the bottom shall have a drain plug.

The cooling system shall contain an "Extended Life Coolant" mix suitable for operation to -34 to +110 degrees F and shall be shutter-less with rapid warm-up features.

All radiator hoses shall be silicone. All radiator hose clamps shall be constant torque stainless steel

The system shall come complete with a charge air cooler sized for the application.

A two (2) year conditional warranty shall be supplied for the cooling system.

Complies Y N

SILICONE HEATER HOSE

All heater system hoses shall be silicone with a stainless steel constant torque clamp approved for use with silicone hose.

Complies Y N

COOLANT FILTER

An engine coolant filter with a shut-off valve shall be installed on the engine. The location of the filter shall allow for easy maintenance.

Complies Y N

LOW COOLANT INDICATOR LIGHT AND TONE ALARM

A low engine coolant indicator light located in the warning lamp center in the instrument panel shall be provided. In addition an audible tone alarm shall be provided to warn of low coolant condition.

Complies Y N

ENGINE-PUMP HEAT EXCHANGER

A single bundle type heat exchanger shall be provided and plumbed so that water from the pump does not come in contact with the engine coolant to allow the use of water from the discharge side of the pump for cooling the engine coolant.

The heat exchanger is to be installed between the engine and the radiator without a shut-off valve.

Complies Y N

TRANSMISSION

The transmission shall be an Allison 3000 EVS five (5) speed automatic with electronic controls. The transmission shall have two (2) 10-bolt PTO pads.

The transmission shall be equipped with an air to oil transmission cooler located below the radiator allowing a single depth core and efficient cooling package. The transmission cooler shall be mounted in a manner to allow 20 degree approach angle by not protruding below the skid plate. The transmission cooler shall be constructed of aluminum with welded side tanks. The transmission shall have two (2) internal oil filters.

Fourth gear hold-in range may be accomplished by wiring for a pumping application.

The transmission gear ratios shall be:

- 1st 3.49:1
- 2nd 1.86:1
- 3rd 1.41:1
- 4th 1.00:1
- 5th 0.75:1
- Rev 5.03:1

Complies Y N

TRANSMISSION TOUCH PAD

An Allison pressure sensitive, range selector touch pad shall be provided and located to the right of the driver within clear view and reach.

Complies Y N

TRANSMISSION MODE

The transmission, upon start-up, will select normal five (5) speed operation.

Complies Y N

TRANSMISSION RETARDER

The transmission shall be equipped with an Allison transmission retarder. The retarder shall be equipped with a dash mounted On/Off switch.

When in the "On" mode, the retarder shall activate as follows:

1/3 strength upon release of accelerator pedal.

2/3 strength upon initial (light) application of brake pedal.

Full strength upon harder application of the brake pedal.

Complies Y N

TRANSMISSION WARRANTY

The Allison 3000 EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

Complies Y N

DRIVELINES

All drivelines shall be 1710 heavy duty series with "glide coat" splines on all slip shafts.

Complies Y N

MULTIPLEX ELECTRICAL SYSTEM

A Weldon multiplex electrical system shall be supplied. The system shall be a single starting type, installed per NFPA 1901. The electrical system shall be 12 volt, suppressed per SAE J551 with three (3) Douglas

BCI-31 950 CCA batteries with 210 minute reserve capacity and 3/0 welding type dual path starter cables per SAE J541.

The Multiplexed wiring system shall include the following:

- * Dash mounted information center with a 6"H x 4"W screen display
- * Systems Diagnostic Menu and controls (ILO Conventional Rocker Switches)
- * Solid state switching
- * Peer to Peer network architecture
- * Weatherproof Nodes
- * Sequences & sheds electrical loads (ILO a Load Management System)

The Vista III Display Node shall include the following features:

- * Automatic climate control.
- * Outside temperature display.
- * A real time clock with display.
- * Three (3) programmable video inputs (one for the rearvision camera system).
- * A useable temperature range from -40 degrees to 185 degrees F.
- * Unlimited virtual switches.
- * Programmable font sizes, types, colors, screen backgrounds, etc.

All wiring to be appropriate gauge cross link with 311 degree F. insulation. All wires in the chassis shall be circuit numbered and function coded, in addition the SAE wiring will be color-coded. The wiring shall be protected by 250 degree F. minimum high temperature flame retardant loom as required.

The starting system shall be supplied with the following:

- One (1) Cole-Hersee #2484 master battery switch
- One (1) Cole-Hersee #EX26654A ignition switch
- One (1) starter button
- One green LED indicator for battery "on"
- One red LED indicator for ignition "on"

Includes 4 rocker switches on driver's dash:

1. Secondary Braking On/Off switch
2. Secondary Braking Variance Control (High/Low) or (High/Med/Low)
3. Spare
4. Spare

The system will include inside and outside ambient temperature monitoring and climate control.

Complies Y N

BATTERY JUMPER STUDS

Battery jumper studs shall be provided under the driver's side battery box. The studs allow the vehicle to be jump started or cab to be raised in an emergency due to battery failure.

Complies Y N

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The instrument panel shall contain the following red backlit gauges and LED indicators, all within clear view of the driver.

- One (1) Electronic tachometer with integral digital hour meter
- One (1) Electronic speedometer. The speedometer shall include a digital odometer/trip odometer
- One (1) three function gauge with front air pressure, rear air pressure and fuel level
- One (1) four function gauge with oil pressure, coolant temperature, transmission temperature and volt meter

The center of the instrument panel shall contain a cluster of indicator lamps informing the driver of the following:

RED LAMPS

- Low air system one (1) or two (2)
- Low engine oil pressure
- High engine coolant temperature
- High transmission temperature
- Low coolant level (with option)
- Air filter restriction
- Low fuel level (activates at 1/4 full)
- Stop engine
- High or low voltage
- Parking brake set

GREEN LAMPS

- Directional left and right indicators
- Auxiliary braking device active
- Low traction (indicates wheel slip) (with ATC option)
- High idle active (with high idle option)

YELLOW

- Check engine
- Check transmission
- ABS brakes
- Wait to start (ISB/C/L only)
- Water in fuel (with option)
- Engine maintenance

BLUE LAMP

- High beam headlight on

AUDIBLE WARNING SYSTEM FOR THE FOLLOWING:

- Low air system
- Low engine oil pressure
- High engine coolant temperature
- High transmission temperature
- Low coolant level (with low coolant option)
- High and low voltage
- Stop engine

Thermal reset circuit breakers and relays shall be installed behind the electrical center cover.

Complies Y N

POWER AND GROUND STUDS FOR TWO-WAY RADIO

Power and grounding studs shall be provided and installed behind the electrical center cover for two-way radios. A 40 amp fuse will be located at the batteries for circuit protection.

Complies Y N

ALTERNATOR

A 270 amp 12 volt Leece-Neville alternator with integral regulator and #10 screw AC terminals shall be installed.

Complies Y N

BATTERY CONDITIONER/BATTERY SAVER WITH AUTO-EJECT

A Kussmaul Auto Charge 35/10, 35 amp battery conditioner and 10 amp power supply. The exact location in the cab where it will be installed shall be determined at the pre-construction meeting.

The remote charge indicator shall be included with the installation. The exact location in the cab where it will be installed shall be determined at the pre-construction meeting.

The conditioner shall incorporate a 10 amp Battery Saver to provide a 12-14 volt power supply for a mobile data terminal, charging hand held radios, hand held lights, and power shall be routed to compartments L2 and R3 (for department installed chargers).

The Battery Saver automatically disconnects the accessory loads from the battery when the shoreline is plugged in and powers them from an internal power supply.

The battery conditioner is to be powered by a 110V shoreline connected to a "Super" 20 amp 120 volt anti-arcing, auto-ejecting, receptacle located on the cab side ahead of the driver's door. The sealed receptacle is complete with a (091-3RD) yellow weatherproof cover.

Complies Y N

HEADLIGHTS

Four (4) halogen headlamps with separate high and low beams in bright bezels shall be provided. The headlamps shall be equipped with a "Daytime Running" light feature, which will illuminate the headlights to 80% brilliance when the ignition switch is in the "On" position and the parking brake is released.

Two (2) side turn signal/marker lights shall be provided on the front cab corners.

Complies Y N

ADDITIONAL CAB SIDE MARKER LIGHT/TURN SIGNALS

Two (2) additional lamps round side turn signal/marker lights shall be provided on the cab over the wheel wells one each side.

Complies Y N

MARKER LAMPS

Five (5) I.C.C. approved Light Emitting Diode (LED) cab marker lamps shall be installed on the face of the cab above the windshield.

Complies Y N

LIGHT BAR

There shall be one (1) Federal AeroDync, 72" long, light bar installed on the chassis cab roof (see Upper Zone A Visual Warning in "PUMP AND BUILDUP" section).

Complies Y N

LED FRONT WARNING LIGHTS & LED TURN SIGNALS

Two (2) approved Whelen 60R00FRR, red LED, steady burning, warning lights shall be installed on the cab front above the headlamps.

Whelen model 60A00TAR, amber LED programmable turn signals shall be installed outboard of the warning lights.

Complies Y N

CORNERING LAMPS

Two (2) Whelen 500 series steady-on cornering lamps with clear lenses shall be provided to illuminate the area adjacent to the front corner of cab when the turn signal switch is activated. The lights shall be installed on the bumper tail with the intersection light.

Complies Y N

INTERSECTION LIGHTS

Two (2) Whelen 60ROOFRR LED red, wide angle warning lights shall be installed on the bumper ends to act as intersection lights.

Complies Y N

SIDE WARNING LIGHTS

Two (2) Whelen 60ROOFRR LED red wide angle warning lights shall be installed on each cab side over the front wheel wells to act as intersection lights.

Complies Y N

ALTERNATING HEAD LAMP WARNING SYSTEM

An alternating high beam headlamp flashing system shall be installed into the high beam headlamp system that will allow the high beams to flash alternately from left to right.

The completed system shall be capable of using high beam to override flashing function and will flash high beams when low beam headlamps are selected.

Complies Y N

SPOTLIGHT

One (1), 1 million candlepower, handheld spotlight shall be provided with the engine. A bracket shall be installed near the officer's seat to secure the spotlight when not in use and a separate "cigarette lighter style" 12V power point shall be provided for it.

Complies Y N

SCENE LIGHTS

Two (2) Whelen #810 series clear halogen scene lights shall be installed on the sides of the cab. The lights shall be surface mounted one (1) each side of the cab. Separate switches one (1) for the left side and one (1) for the right side shall control the lights.

Complies Y N

BACKUP ALARM

An ECCO #575 backup alarm shall be installed at the rear of the chassis with an output level of not less than 107 dB (A). The alarm will automatically activate when the transmission is placed in reverse.

Complies Y N

REAR VISION CAMERA SYSTEM

A SafetyVision, high-resolution black and white rear vision camera shall be installed and integrated to the dash mounted Vista LCD monitor. It shall automatically engage whenever the apparatus is placed in the reverse mode of operation and manually by an individual activation switch on the VISTA control panel.

The camera shall be mounted in a weather-resistant housing to protect the connection from water and other forces. The camera shall feature a solid-state imager, electronic iris, wide angle lens, built-in heater and waterproof connector. The housing shall resist up to 60 G's of shock and vibration resistance to 6.8 G's. It shall be subjected to salt spray testing to handle road conditions. The viewing area shall not be less than 118 degrees horizontal and 93 degrees vertical.

Complies Y N

GROUND LIGHTING

The cab shall be equipped with Trucklite brand #40044 under cab lighting. The sealed lights shall be located under the cab at each door.

Complies Y N

LED FLASHING CAB DOOR LIGHTS

Four (4), grommet mount red Trucklite 4" LED lights shall be provided. One (1) light shall be vertically mounted near the outer edge of the lower inner surface of each cab door. The lights shall be programmed to flash when a cab door is opened, to act as a warning to oncoming traffic.

Complies Y N

FLAT FLOOR SMFD FLAT ROOF TILT CAB

The cab shall be a flat floor, SMFD (short-medium four door), flat roof, aluminum tilt cab, capable of seating six (6) firefighters.

The cab shall be of an interior design that allows for easy communication inside the cab. The cab shall be 45" from the centerline of the front axle to the back of the cab.

The rear cab wall shall be .090" thick aluminum minimum. The rear floor to the headliner shall be 55" high.

The cab front skin and floor shall be minimum.190" thick aluminum. All glass used in the cab shall be automotive tint. Left and right windshield shall use the same interchangeable glass.

The front doors shall have a full roll down window.

The rear door windows shall be openable.

Grab handles shall be provided inside the cab on the hinge post at the front doors for entering and exiting the cab.

The driver and officer seats shall have an 8" high x 16.25" wide x 18.75" deep compartment in the seat box beneath them. The compartment shall have a hinged locking door with an opening of 6" high x 14.25" wide. There shall be the same type of locks as used for the body compartment doors and will be provided by the body manufacturer.

Intermittent parallel arm-type electric wipers with separate motors and electric powered "wet arm" type windshield washers shall be provided. Access to the wiper motors shall be through an access panel.

Complies Y N

CAB DOORS

The cab doors shall be flush, "barrier clear" style, short doors with hidden .375 stainless steel door hinges. All doors shall be equipped with keyed alike locks that are designed to prevent accidental lockout.

The interior latches shall be flush paddle type, which are incorporated into an upper door panel.

The front doors shall have minimum .13" thick aluminum skins. The front steps shall be a two (2)-step configuration with the lower step constructed of stainless steel open grate material and the intermediate step covered with embossed, NFPA compliant, aluminum treadplate.

The rear doors shall have minimum .13" thick aluminum skins. The rear steps shall be a two (2)-step configuration with the lower step constructed of stainless steel open grate material and the intermediate step covered with embossed, NFPA compliant, aluminum tread-plate.

Complies Y N

ZOLOTONE PAINTED INNER DOOR PANELS

The one-piece inner door panel shall be texture painted with Zolatone and have an aluminum treadplate lower panel.

Complies Y N

ENGINE COVER EXTREME DUTY

The fixed type engine cover shall be a maximum of 23.00" high x 41.50" wide. The back of the tunnel shall be 51.00" from the back wall.

The cover shall be an integral part of the cab and made of aluminum. The exterior shall be painted with a Zolatone texture finish and the underside of the cover shall be heavily insulated with minimum 1" multi-layer foam with a non-conductive Mylar backing and held in place with adhesive **AND** aluminum pins and retention caps.

Complies Y N

FULL WIDTH CREW CAB DOOR ASSIST RAILS

Black powder coated cast aluminum assist rails shall be provided and installed on the inside of the rear crew doors the full width of the window glass. The rails shall assist personnel in exiting and entering the cab. The rails shall be located at the retracted door window glass level and will protect the exposed window glass area.

Complies Y N

INTERIOR LIGHTING

The cab interior lighting shall consist of the following:

A red/white dome lamp with shall be located over each door. Its respective door, when opened, shall activate the white lamp and both activated by an individual switch on the light.

A clear light shall be located in the molded panel of each door and activated when the door is opened. The light shall be 6.5" long x 3" high.

A two (2) light module with dual map lights shall be located in the headliner, over the engine tunnel.

Complies Y N

AUDIBLE ALARM FOR OPEN DOOR LIGHT

An audible alarm shall be wired to the open door light, which will sound when a door is open and the air brake is off with the vehicle in gear.

Complies Y N

ENGINE TUNNEL LIGHTS

Two (2) work lights shall be provided and installed under the engine tunnel.

Complies Y N

CLEAR DOME LAMP

One (1) 7" clear dome lamp with switch shall be mounted in the headliner of the cab front to the left of the officer seat.

Complies Y N

RED DOME LAMP IN CREW AREA

One (1) 7" red dome lamp with switch shall be installed in the crew area headliner centered between the two clear crew area domes.

Complies Y N

CLEAR DOME LAMPS IN CREW AREA

Two (2) 7" clear dome lamps with switches shall be installed in the crew area headliner inboard of the outer rear facing seats.

Complies Y N

DOMELAMP DOOR SWITCH ACTIVATION

The 7" dome lamp shall be door switch activated in addition to the push button switch.

Complies Y N

DOMELAMP INDIVIDUAL SWITCH

The one (1) 7" dome lamp shall have a push button switch.

Complies Y N

DOMELAMP DOOR SWITCH ACTIVATION

The two (2) 7" dome lamps shall be door switch activated in addition to the push button switches.

Complies Y N

MAP LIGHT

A Federal Lit-lite LF12PR gooseneck style instrument panel map light shall be installed on the right hand side of the dash panel.

Complies Y N

12 VOLT RECEPTACLES

Three (3) 12-volt cigarette lighter type receptacles shall be provided in the cab dash on the officer's side to act as a power source (one shall be for the 12V handheld spotlight).

Complies Y N

12 VOLT RECEPTACLE

A 12-volt cigarette lighter type receptacle shall be provided in the (rear) crew area.

Complies Y N

DRIVER SEAT

The driver seat shall be a six way electric Seats Inc. 911 "ABTS" high back. The seat shall have tapered and padded seat cushion with mechanical suspension.

The seat shall be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

Complies Y N

OFFICER SEAT

The driver seat shall be a six way electric Seats Inc. 911 "ABTS" high back. The seat shall have tapered and padded seat cushion with mechanical suspension.

The seat shall be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat assembly.

Complies Y N

CREW SEATS

Two outboard, rear facing, crew area, Seats Inc. 911 ABTS SCBA seats.

Two center forward facing crew area Seats Inc. 911 "Universal" seats with a flip up bottom cushion shall be installed at the back wall of the cab.

The forward facing seats shall be installed on a 40"-52" wide aluminum storage compartment mounted in the center of the cab at the rear wall. The depth of the compartment shall be the same as the seats in the flipped up position. The seats shall be spaced closer together than the rear facing seats.

Each seat shall be equipped with a red integrated 3-point shoulder harness with lap belt and an automatic retractor built into the seat frame.

Complies Y N

IMPERIAL 1200 COVERED SEATS

All seats shall be covered with Imperial 1200 vinyl coated polyester material.

Complies Y N

INTERIOR TEXTURE FINISH

The interior metal surfaces of the cab shall be painted with a Zolatone gray texture finish.

Complies Y N

EXTREME DUTY INTERIOR

The cab interior shall be designed for extreme duty with the ABS header and dash trim eliminated.

Complies Y N

INTERIOR VINYL AND FLOOR MAT

The cab interior vinyl and ABS trim surfaces, including the seats shall be gray in color.

The pebble grain, non-slip vinyl covered, foam backed, sound deadening, multi-layer insulating floor mat shall be gray. All high wear corners shall be edged in aluminum.

Complies Y N

HEATER/DEFROSTER

A 57,600 BTU, front overhead heater and defroster shall be provided. The heater shall be located above the windshield between the padded sun visors. The heater shall contain temperature and blower controls.

Complies Y N

AIR CONDITIONING

The cab shall have a combination heater/air conditioning unit mounted on the engine tunnel.

The air-conditioning evaporator/heater unit shall be rated at 42,500 BTU for cooling and 36,000 BTU for heating, minimum.

The air conditioning condenser shall be matched to the evaporator/heater.

The condenser will be located on the roof of the cab.

The air conditioning compressor will be an engine driven Seltec TM-16, with 9.98 cubic inches of displacement.

A seasonal shut-off valve for the heater will be supplied at the front of the right hand corner of the cab.

Complies Y N

DIAMOND PLATE CONDENSER PROTECTION

The roof-mounted condenser shall have a bright aluminum treadplate protection plate designed to provide protection from low hanging branches while minimally increasing the overall height of the vehicle.

Complies Y N

ADDITIONAL INSULATION

Additional insulation in the cab shall be installed to improve air conditioning and/or heating in extreme weather climates as well as reducing road noise. The sides, roof and rear wall of the cab shall contain minimum 1" thick multi-layered insulation.

Complies Y N

CAB TILT ACTUATION

The entire cab shall tilt 45 degrees to allow for easy maintenance of the engine and transmission.

The cab tilt actuation shall be with an electric over hydraulic lift pump with a control box on a pennant for safe visual operation.

The lift system shall have an ignition interlock and red lock down indicator lamp, which shall illuminate when holding "down" switch to indicate safe road operation. It shall be necessary to activate the master battery switch with the park brake set in order to tilt the cab.

Two cab tilt cylinders shall be provided with velocity fuses in each cylinder port.

A steel safety assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety assembly shall fall over the lift cylinder when the cab is in the "up" position. A cable release system shall also be provided to clear the safety assembly from the lift cylinder when lowering the cab.

Complies Y N

MANUAL CAB LIFT PUMP

A manual cab lift pump module shall be attached to the electric over hydraulic tilt pump. **No Exception.**

Complies Y N

FRONT GRILLE

A stainless steel front grill 40.00"W x 30.00"H, with a minimum free air intake of 480sq. in. shall be installed on the front cab front.

Complies Y N

DIAMOND PLATE ON CAB ROOF

A section of aluminum treadplate shall be installed on the cab roof as walking area to the condenser.

Complies Y N

DIAMOND PLATE FLOOR IN CAB

The floor areas shall have aluminum treadplate placed over the sound-deadening mat. The slope of the wheel well rise shall also be tread plated. The diamond plate shall be installed over the floor mat.

Complies Y N

WHEEL WELL LINERS

Full width wheel well liners shall be installed on the extruded cab. The liners shall be 16" wide ABS plastic, with the outer fenderettes 2.38" wide polished stainless steel.

Complies Y N

REAR CAB WINDOWS

A window 26"H x 8"W shall be installed at the outboard edge of the rear cab wall, one each side.

Complies Y N

EXTERIOR CAB ASSIST HANDLES

Four (4) 18" knurled anti-slip one-piece stainless steel exterior assist handles shall be installed, one (1) behind each cab door.

Complies Y N

CAB MIRRORS

Two (2), heated, West Coast style, mirrors shall be provided. The full-face flat glass shall be remote control with switches on the dash; two (2) fixed convex mirrors shall be mounted below the flat mirrors. The mirror

arms shall have a "break away" feature to prevent damage to the door in the event of striking an immobile object.

Complies Y N

TWO TONE EXTERIOR PAINT

All cab painting must be completed prior to the installation of glass, accessories or any other cab trim to assure complete paint coverage and maximum corrosion protection.

The cab roof and upper sides of the cab shall be painted white down to 1" below the front window and side windowsills.

The entire cab must be disc ground to remove any surface oxidation or surface debris that may hinder the paint adhesion.

Upon the application of required body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface-paint adhesion. The entire cab then shall be coated with an intermediate surface that is designed to fill minor surface defects, provide an adhesive bond between the primer and the paint, and improve the color and gloss retention of the color coats.

The cab shall be finish sanded and painted with two (2) to four (4) coats of an acrylic urethane type system designed not only for color retention but to resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The maximum overall film thickness of the topcoat shall not exceed five (5) mils.

The standard PPG (DBHS or DCC), paint shall be warranted for seven (7) years against cracking, checking or peeling and loss of gloss caused by chalking or fading.

Cab underside and doors shall be rust proofed with a ten (10) year or 100,000 mile warranty certificate against perforation issued in the Fire Department's name.

Complies Y N

OPERATORS MANUAL AND PARTS LIST

Two (2) chassis operator's manuals and parts lists with wiring and air plumbing diagrams shall be provided. The wiring and plumbing diagrams shall be of the chassis model.

Complies Y N

ENGINE AND TRANSMISSION OPERATION MANUAL

Two (2) engine operation and maintenance manuals and two (2) transmission operation manuals shall be included in the Spartan operators manual.

Complies Y N

CATERPILLAR C9 ENGINE SERVICE MANUALS

There shall be a quantity of one (1) of the following Caterpillar C9 engine service reference manuals provided:

- Engine Troubleshooting and Repair Manual
- Electronic Control System Troubleshooting and Repair Manual
- Operation and Maintenance Manual
- Wiring Diagram
- Parts Catalog
- Service Literature-Engine Familiarization

Complies Y N

ALLISON 3000 EVS TRANSMISSION SERVICE MANUALS

There shall be the quantity of one (1) of the following Allison 3000 EVS transmission service and reference manuals provided:

- PC2809EN Parts Catalog
- SM2148EN Service Manual
- GN2055EN Technician Guide
- TS2973EN Electronic Controls Troubleshooting Manual

Complies Y N

FIRE EXTINGUISHER

A 2.5 lb. BC DOT approved fire extinguisher shall be shipped loose with the cab.

Complies Y N

Pump and Build-up

INDEPENDENT FIRE PUMP MOUNTING

The fire pump shall be mounted within a separate body module that is not directly connected to the apparatus body. This module shall be mounted to the frame in four locations and in such a manner as to reduce the likelihood of a collision causing the pump casing to crack

The point where the pump module is mounted to the frame shall be reinforced appropriately to carry the expected load for the life of the apparatus.

Plumbing as well as the pump shall be integral with the pump module as much as possible to facilitate the changing of the chassis should the apparatus be involved in a collision.

Complies Y N

FIRE PUMP

The pump shall be a 1500 GPM, single stage, centrifugal class "A" rated fire pump, designed specifically for the fire service. **NO EXCEPTION.**

Complies Y N

INDEPENDENT THIRD PARTY PUMP CERTIFICATION

The fire pump shall be tested and certified, by an independent third party testing company, to perform as listed below:

- 100% of rated capacity at 150 pounds net pressure.
- 70% of rated capacity at 200 pounds net pressure.
- 50% of rated capacity at 250 pounds net pressure.
- 100% of rated capacity at 165 pounds net pressure.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturers factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. The pump shall be free from objectionable pulsation and vibration.

The fire pump shall be rated for 1500 GPM at 6000 ft. of elevation.

Complies Y N

PUMP ANODES

There shall be two (2) anodes provided with the fire pump and manufactured by the pump manufacturer. One (1) anode shall be in the left steamer and one (1) shall be in the right.

Complies Y N

PRESSURE RELIEF VALVE

There shall be a master pressure relief valve system. The system shall consist of a two stage, mechanical pressure relief valve system. The first stage pressure relief shall relieve to the suction side of the pump. When the first stage relief capacity is exceeded the second stage relief valve shall relieve excess discharge pressure to the atmosphere. The system shall be designed as part of the pump casing. A single hand wheel controller shall be mounted on the operator's panel and be equipped with an indicator light that illuminates when the valve(s) is in the open position. **NO EXCEPTION.**

Complies Y N

THERMAL RELIEF VALVE WITH INDICATOR

There shall be a thermal relief valve installed on the pump by the pump manufacturer. The relief valve shall automatically relieve water from the pump when the temperature of the pump water exceeds the predetermined manufacturer temperature setting. The valve shall automatically reset after activation. The light shall be installed on the pump operator's panel to indicate when the valve has been activated so the pump operator may take corrective action. **NO EXCEPTION.**

Complies Y N

IMPELLER

Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined and individually balanced. The vanes of the impeller intake eyes shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower.

Pump shaft to be rigidly supported by three bearings for minimum deflection. One high lead bronze sleeve bearing to be located immediately adjacent to the impeller (on side opposite the gearbox). The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.

Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

Complies Y N

MECHANICAL SEAL

The pump shall be equipped with self-adjusting, maintenance free mechanical shaft seal that shall not require manual adjustment. Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat with Teflon backup seal. This seal shall be designed in a manner such that it shall remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

Complies Y N

PUMP CASING

Pump body shall be horizontally split, on a single plane in two sections for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in chassis.

The casing shall be made of high tensile, close-grained gray iron with a minimum tensile strength of 30,000 PSI.

The pump body shall extend as one piece across the truck chassis from side mounting to side mounting and incorporate the discharge manifolding system with a minimum of (2) 4" ports and (7) 3" ports.

Complies Y N

PUMP TRANSMISSION

The pump and transmission shall be easily separable.

All driveline components shall have a torque rating equal to or greater than the final net engine torque.

Complies Y N

AIR OPERATED PUMP SHIFT

The pump shift actuating mechanism shall be air operated from a valve in the cab identified as "PUMP SHIFT". Full instructions for shifting the pump shall be inscribed on the valve plate.

A manual override system shall be supplied for the pump shift should a problem develop in the chassis air brake system. Controls for the override shall be located at a lower corner of the pump panel. Full instructions shall be inscribed on a plate near the pump shift controls.

Complies Y N

PUMP SHIFT INDICATING LIGHTS

There shall be two (2) green pump system shift indicator lights in the chassis cab. The first light shall become energized when the chassis parking brake has been set and the pump has completed its shift into pump gear and shall be labeled "Pump Engaged". The second light shall become energized and when the pump and the chassis transmissions have been shifted completely into the correct gears for pumping, this light shall be labeled "OK to Pump".

There shall be one (1) green pump system shift indicator light located on the operator's panel. This light shall only become engaged when the chassis parking brake has been set, and when the pump and the chassis transmissions have been completely shifted into the correct gears. The light shall be located adjacent to the throttle control and shall be labeled "Warning: Do Not Open Throttle Unless Light Is On".

Complies Y N

OIL-LESS PRIMER

An environmentally safe, oil-less, priming pump, priming valve, and piping assembly shall be included in the pump assembly. The priming pump shall be an electrically driven rotary vane pump. The pump shall be push-button controlled from the pump operator's panel.

The pump shall be capable of creating suction and discharging water from a lift of 10 feet through 20 feet of 6" suction hose, in not more than 45 seconds starting with the pump dry.

It shall be capable of developing a vacuum of 22 inches at an altitude of up to 2000 feet.

There shall be a manual valve installed to main pump and an electric valve to auxiliary pump.

Complies Y N

PUMP DRAIN VALVE

A manifold drain valve assembly shall be supplied. This drain shall provide the capability to drain the entire pump by pulling a single control. The valve assembly shall consist of a stainless steel plunger in a bronze body with multiple ports. The drain valve control shall be mounted on the left side pump panel and identified as "Pump Drain".

Complies Y N

PUMP LUBRICATION

Grease zerk(s) shall be installed in a convenient location and connected to the pump lubrication points by copper tubing.

Complies Y N

HEAT EXCHANGER

The engine; (chassis), providing power to drive the fire pump, shall have a supplementary cooling system that uses water from the discharge side of the pump to cool the engine coolant through the use of a closed heat exchanger. The water from the pump and the engine coolant shall not be intermixed. A valve on the pump operator's station shall control this cooling system.

Complies Y N

1/2" PUMP COOLER LINE

There shall be one (1) 1/2" pump cooling/recirculation line from the pump, which is connected directly into the booster tank with a quarter-turn ball valve on operators' panel to be labeled "Pump Cooler On/Off".

Complies Y N

PUMP COOLER CHECK VALVE

There shall be a check valve installed in the pump cooler line to prevent tank water from back flowing into the pump when it is not in use.

Complies Y N

PUMP MANUAL

One (1) Pump Operation & Maintenance manual(s) shall be supplied at the time of delivery.

Complies Y N

PUMP WARRANTY

The manufacturer shall warrant the fire pump (parts and labor) for a period of not less than two (2) years from the date of delivery to the fire department.

The fire pump, parts, shall be covered by an additional 3 year warranty.

Complies Y N

TANK TO PUMP CHECK VALVE

There shall be a check valve between the pump suction and the booster tank valve. The check valve shall eliminate back flow into the water tank when the pump is connected to a pressurized source.

Complies Y N

TANK TO PUMP VALVE

There shall be one (1) 3" full flow ball valve connected with a flexible hose from the tank to the suction side of the pump. It shall be mechanically controlled and reverse plumbed (In for "Open", Out for "Closed")..

Complies Y N

TANK FILL VALVE

There shall be one (1) 2" full-flow tank fill valve plumbed with 2" plumbing from the pump to the tank. Installation shall be completed with 2" Class1 rubber hose. Stainless steel hose couplings shall be utilized. The tank fill valve shall be controlled from the operators control panel.

Complies Y N

6" STEAMER SUCTION INLETS

There shall be two (2) 6" male steamer inlets, one (1) on each side of the apparatus. The suction fittings shall include a removable die cast screen to provide cathodic protection for the pump thus reducing corrosion.

Complies Y N

SHORT STEAMER BARREL - LEFT SIDE

To accommodate an intake valve without exceeding the legal overall body width, a shorter steamer barrel shall be installed on the left side of the apparatus.

Complies Y N

SHORT STEAMER BARREL - RIGHT SIDE

To accommodate an intake valve without exceeding the legal overall body width, a shorter steamer barrel shall be installed on the right side of the apparatus.

Complies Y N

RIGHT STEAMER INLET VALVE (ELECTRIC)

The right steamer inlet shall be gated with a master intake valve butterfly valve made by the same manufacturer as the pump. The valve shall be electrically operated from a solid-state controller located on the pump panel. The pump panel controller shall have three (3) LED position indicator lights. The lights shall represent the following operations: Green - Full Open, Red - Full Closed, and Yellow - Throttled. Valve opening and closing speed is preset to comply with the current NFPA 1901 standards.

A pressure relief valve shall be provided that is factory set to 125 PSI and field adjustable from 75 to 250 PSI. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed. The outlet of the pressure relief valve shall have 2-1/2" NPT threads to allow directing the discharge flow away from the pump operator's position.

There will be an access hole in the right pump panel for overriding the electric controller.

Provide T-handle to override actuation and locate inside RH pump access door with label.

Complies Y N

STEAMER INLET ADAPTER

There shall be one (1) 6" FNH long handle X 4" FNH, chrome plated, 30 degree adapter (Red Head # E0L036000140001) for the right steamer inlet supplied with the apparatus. One (1) 4" MNST, hard anodized, aluminum plug shall be provided on a chain.

There shall be one (1) 6" NST chrome plated Southpark LHC26P14AC long handle steamer cap(s) shall be provided. This shall be on the Left steamer.

Complies Y N

AUXILIARY DIESEL PUMP

There shall be a Waterous model E511-A diesel engine auxiliary pump provided above the pump compartment. The pump shall be plumbed in common with that of the main pump for pump and roll applications. The pump shall have a minimum rated capacity of 200 gpm @ 100 psi.

The pump shall have a 3" female NPT intake that is plumbed directly into the tank.

The pump shall have a 2" female NPT discharge that is plumbed directly into the foam manifold. There shall be a check valve provided in this line to keep the main pump from pressurizing the auxiliary pump.

There shall be a check valve installed in the tank to pump line for the auxiliary pump. It shall be installed low under the tank.

The pump volute body and head shall be constructed of high strength aluminum alloy, anodized for superior corrosion resistance.

The impeller shall be a high strength corrosion resistant bronze, fully enclosed, double hubbed to balance hydraulic thrust, and mechanically balanced to eliminate vibration.

The pump wear rings shall be long wearing bronze. Easy to replace when required for restoring original pump efficiency.

The pump drive shaft shall be high strength stainless steel.

The pump shaft seal shall be a spring-loaded mechanical type.

The pump gear case shall include a speed increaser utilizing high strength aluminum alloy case, helical cut, hardened steel gears and antifriction bearings throughout.

The diesel engine shall be an inline 3-cylinder, water-cooled, overhead valve (OHV) design. The engine shall be capable of delivering a maximum output of 26.5 hp (19.8 Kw) @ 3600 RPM, with 58.1 cu. in. (952 cc) displacement.

A pressure feed oil system with a spin on filter, shall lubricate the pump engine.

The engine shall be supplied with a 12volt electric starter.

There shall be a 12-14 volt, 40-amp alternator provided on the engine.

There shall be one (1) 3/8" pump cooling/recirculation line from the pump, which is connected directly into the booster tank. It shall be plumbed without a valve.

The priming system consists of a Waterous electric primer with remotes mounted on both the control panels.

There shall be one (1) deluxe control panel provided with the auxiliary pump. The deluxe control panel shall be mounted above the left side pump panel.

There shall be an additional control console provided in the cab. The console shall have a remote start, throttle control, master pressure gauge, remote primer control, and water tank gauge. The console shall be mounted on the driver's side of the engine tunnel. Mount auxiliary engine controls in a custom housing installed on the LH top side of engine enclosure angled towards the driver.

There shall be sufficient room for a Vista V-Mux color display screen to be installed.

The Municipal Panel shall be mounted above the gauge panel on the left (operator's) side of the pump module.

The auxiliary engine exhaust shall exit beside main engine exhaust under RH side of body.

There shall be a baffle installed in auxiliary engine compartment.

The cab throttle control shall be a linear actuator, mounted to radiator housing of the auxiliary engine.

There shall be no tank to pump valve controls in the cab.

There shall be a 1/4" bypass line installed without a valve.

There shall be a 1/4 turn shut-off valve on pump discharge pressure line.

There shall be a pressure gauge installed in cab.

There shall be a Booster Fuel pump installed.

Complies Y N

AUXILIARY PUMP COVER

A bar-grate cover shall be installed over the auxiliary pump. The cover shall be designed in such a manner as to allow for easy access to the auxiliary pump when performing routine maintenance. The cover shall also be designed in compliance with the engine manufacturer's airflow requirements.

Complies Y N

AUXILIARY PUMP INSTALLATION DETAIL

Bidder shall provide detail drawings and photographs of comparably auxiliary pump installations as part of their bid package. Details to be shown are auxiliary pump cover, radiator ducting, pump mounting, plumbing, cab control console, etc. **NO EXCEPTION.**

Complies Y N

GATED SUCTION INLETS

All suction valves, unless otherwise noted in the specifications, shall be Hale SVS stainless, quarter-turn, full flow, swing-out type. Each valve shall be designed in such a manner that the action of water against the regulating element shall not affect its position. The handles shall be direct acting and twist to lock.

Each valve shall be individually attached to the manifold of the pump with schedule 40 galvanized pipe. The plumbing to the valve shall contain a minimum of elbows to keep friction loss to a minimum.

The valves located in the pump compartment area shall be partially recessed behind the panel with the portion of the valve that contains water protected from the elements.

Complies Y N

CAPS AND PLUGS

All caps and plugs for exterior valves must be chrome plated brass (with the exception of the 4" inlet plug referenced above) or stainless steel. Chrome plated aluminum or pyrolite is NOT acceptable. **NO EXCEPTIONS.**

Complies Y N

INTAKE DRAINS

Each gated intake shall be equipped with an integrated push-pull bleeder valve.

Complies Y N

INTAKE TRIM PLATES

Each gated intake shall have a polished/brushed trim plate around the intake valve and fitting. The trim plate shall be easily removable without the need to disturb the valve.

Complies Y N

SLOW CLOSE MECHANISMS

Gated intakes that are 3" or larger shall be equipped with a mechanism to prevent changing the position of the valve from full open to full close, or vice-versa, in less than 3 seconds.

Complies Y N

INTAKE STRAINERS

Removable strainers shall be provided with each gated intake.

Complies Y N

LEFT SIDE 2-1/2" GATED INTAKE(S)

There shall be one (1) 2-1/2" gated intake(s) provided on the left side of the pump compartment. The intake shall be furnished with a 2-1/2" valve and 2-1/2" plumbing. The intake shall terminate with a 2-1/2" NST female chrome swivel. A 2-1/2" chrome plated plug shall be supplied and attached to the bezel by means of a chain.

The valves located in the pump compartment area shall be partially recessed behind the panel with the portion of the valve that contains water protected from the elements.

Complies Y N

RIGHT SIDE 2-1/2" GATED INTAKE(S)

There shall be one (1) 2-1/2" gated intake(s) provided on the right side of the pump compartment. The intake shall be furnished with a 2-1/2" valve and 2-1/2" plumbing. The intake shall terminate with a 2-1/2" NST female chrome swivel. A 2-1/2" chrome plated plug shall be supplied and attached to the bezel by means of a chain.

The valves located in the pump compartment area shall be partially recessed behind the panel with the portion of the valve that contains water protected from the elements.

Complies Y N

BOOSTER REEL

There shall be one (1) Hannay aluminum fabricated electric booster reel, with a capacity of 150' of booster hose. The reel shall have a 1-1/2" quarter turn ball valve controlled from operator's panel and piping connected with 1-1/2" flexible hose. An automatic brake and an auxiliary manual rewind crank shall be supplied.

The natural aluminum finish of the booster reel shall be left unpainted.

The reel shall be located in the left side of dunnage area above pump.

There is no gauge on the pump panel.

A protective cover will be installed over Booster Reel motor and wiring.

Complies Y N

BOOSTER REEL GUIDE ROLLERS

The booster reel shall be equipped with two (2) set(s) of hose guide rollers.

Roller assemblies shall be located on each side of the dunnage area.

Complies Y N

BOOSTER REEL REWIND BUTTON(S)

There shall be two (2) rubber covered push button switch(s) installed for the rewind control of the booster reel.

One shall be located on the upper section of the left side pump operator's panel and one shall be located on the right (curb) side of the pump module.

A Zico nozzle holder with stainless steel bracket will be installed on the LH side of pump panel for the booster reel nozzle.

Complies Y N

BOOSTER HOSE

Three (3) 50' x 1" sections of red "Goodyear" brand booster hose coupled with 1" NPSH, chrome "Bar Way" couplings shall be supplied.

Complies Y N

CROSSLAY PRECONNECTS

Crosslay preconnects shall be brass and have 90 degree, elbow type, swivels on discharge outlets. There shall be a self-draining floor in the crosslay hose beds for ventilation and drainage.

The divider(s) between the hosebed areas shall be minimum 3/16" aluminum. They shall be mounted in a manner that provides stiffness fore and aft.

Complies Y N

CROSSLAY HOSEBEDS

There shall be three (3) 1-3/4" crosslay hose beds provided above the transverse compartment ahead of the pump module. The crosslay hose beds shall have a minimum capacity of 200' of 1-3/4" double jacket fire hose.

The crosslay assembly shall be wide enough to allow for the following dimensions between the dividers. Each individual crosslay bed shall be the full width of the compartment/module and 13 inches high. The front to rear dimensions shall be as follows:

- Crosslay - 1 7" wide
- Crosslay - 2 7" wide
- Crosslay - 3 7" wide

The crosslays and the dividers shall have an abraded finish.

Complies Y N

ALUMINUM CROSSLAY COVER

There shall be an aluminum non-slip treadbrite cover installed over the crosslay hosebeds. The cover shall not interfere with hose loading when in the open position. When in the open position, the cover shall remain open due to automatically engaging mechanisms that require no type of latch operation to engage or release.

The cover shall be provided with one full-length stainless steel piano style hinge that shall attach the cover to the body.

The cover shall be light yet rigid. One person on one side of the apparatus may perform opening of the cover and yet the cover shall be rigid enough to support 250 pounds without deformation.

Complies Y N

CROSSLAY ROLLERS

Stainless steel rollers shall be provided at each end of the crosslay hose bed to facilitate deployment of hose. Vertical rollers shall be installed on each side of the hosebed opening, and a horizontal roller shall be installed under the opening. The rollers shall be designed so that they are slightly higher than the floor and slightly narrower than the width so that as hose is sliding out, it is riding on the roller.

Complies Y N

PUMP DISCHARGES

All discharge valves, unless otherwise noted in the specifications, shall be Hale Torrent SVS series, stainless steel, quarter-turn, full flow, swing-out type. The handles shall be direct acting (on the pump operator's side) and twist to lock. The flow-regulating element of each valve shall not change its position under any condition of operation involving discharge pressures to the maximum pressure of the pump.

Complies Y N

DRAIN VALVES

Each discharge 2-1/2" or larger, with the exception of the crosslays and hard to access plumbing, shall be equipped with a push-pull drain between the valve and the discharge. The drain valve shall be incorporated in the discharge elbow casting.

Discharge from the drain valves shall be routed to below the apparatus.

Complies Y N

DISCHARGE ELBOWS

All discharges that are 2" or larger and are 42" or more above grade shall be equipped with a downward pointing elbow of 30° or more.

Complies Y N

DISCHARGE CAPS

All discharges, not designated as a preconnect, shall have a chrome or stainless steel caps. Caps for 2 ½" discharges and smaller shall be secured to the apparatus with suitable chains.

Chrome plated aluminum or pyrolite is NOT acceptable. **NO EXCEPTIONS.**

Complies Y N

DISCHARGE TRIMPLATES

Each gated discharge shall have a polished aluminum or brushed stainless trim plate around the discharge valve and fitting. The trim plate shall be easily removable without the need to disturb the valve.

Complies Y N

SLOW CLOSE MECHANISMS

Discharges that are 3" or larger shall be equipped with a valve mechanism to prevent changing the position of the valve from full open to full close, or vice-versa, in less than 3 seconds as required by NFPA.

Complies Y N

FRONT BUMPER 1-1/2" DISCHARGE

There shall be one (1) 1-1/2" NST discharge with swivel installed in the front hose well of the apparatus. The discharge shall be plumbed with a 2" Akron valve and 2" plumbing. Class1 high-pressure flex hose with stainless steel couplings shall be used in the plumbing of this discharge.

Discharge shall be located above the apron on the left side.

A bronze swivel shall be located on the front discharge.

There shall be a cut out on the driver's side of the hose storage well lid to allow for pre-connected hose.

The valve shall be recessed and controlled at the front bumper.

There shall be no gauge provided on the pump panel.

This discharge shall have a secondary valve installed in pump compartment behind the pump panel in a place that is easily accessible.

Provide ID label for the front discharge secondary valve on the pump panel.

Complies Y N

REAR 2-1/2" DISCHARGE

There shall be one (1) 2-1/2" NST discharge located at the right rear of the apparatus. The discharge shall be plumbed with a 2-1/2" valve and 2-1/2" plumbing.

Complies Y N

LEFT SIDE 2-1/2" DISCHARGES

There shall be two (2) 2-1/2" NST discharge(s) on the left side of the pump compartment.

Complies Y N

RIGHT SIDE 2-1/2" DISCHARGE

There shall be one (1) 2-1/2" NST discharge(s) on the left side of the pump compartment.

Complies Y N

RIGHT SIDE 4" LARGE DIAMETER DISCHARGE

There shall be one (1) 4" NST discharge located on the right side pump panel. The discharge shall be plumbed with a 4" Hale Torrent SVS valve and 4" plumbing. An electronic control shall control the 4" discharge.

A Position Indicator shall show the position of the ball valve as per NFPA 1901. Opening and closing speed shall comply with the current NFPA Standard to minimize effects of water hammer.

Complies Y N

ELBOW ADAPTER

One (1) 4" NST female x 4" NST male 30 degree chrome plated elbow adapter(s) with 4" lug style chrome plated cap shall be supplied with the apparatus at the time of delivery. The adapter shall be located on the LDH discharge.

Complies Y N

FOAM PRO 2002 SINGLE FOAM SYSTEM

The apparatus shall be equipped with a Hypro FoamPro 2002 electronic, fully automatic, variable speed, direct injection, discharge side foam proportioning system. The system shall be capable of handling Class A foam concentrates and most Class B foam concentrates.

The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures. The system shall be equipped with a digital electronic control display, suitable for installation on the pump panel.

Incorporated within the control display shall be a microprocessor that receives input from the system flowmeter, while also monitoring foam concentrate pump output, comparing values to ensure that the operator preset proportional amount of foam concentrate is injected into the discharge side of the fire pump.

A paddlewheel type flowmeter shall be installed in a manifold for the specified foam capable discharges.

The digital computer control display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

- Provide push-button control of foam proportioning rates from 0.1% to 9.9% in 0.1% increments.
- Show current gallon-per-minute water flow rate.
- Show total gallons of water discharged, during and after foam operations are completed.
- Show total gallons of foam concentrate consumed.
- Simulate flow rates for manual operation.
- Perform set-up and diagnostic functions for the computer control microprocessor.
- Flash a low concentrate warning when the foam concentrate tank(s) run(s) low.
- Flash a no concentrate warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty.

A 12 volt electric motor driven positive displacement foam concentrate pump, rated up to 5.0 GPM, with operating pressures up to 400 PSI, shall be installed in a suitable compartment near the apparatus pump house. A pump motor electronic driver (mounted to the base of the pump) shall receive signals from the computer control display, and power the 3/4 horsepower electric motor directly coupled to the concentrate pump in a variable speed duty cycle to ensure that the correct proportion of concentrate preset by the pump operator is injected into the water stream.

System Capacity shall be as follows:

| <u>Foam Concentrate</u> | <u>2002 Maximum Water Flow GPM (LPM)</u> |
|-------------------------|--|
| 0.2% | 2500 (9464) |
| 0.5% | 1000 (3785) |
| 1.0% | 500 (1893) |
| 3.0% | 166 (628) |

A full flow check valve shall be provided to prevent foam contamination of fire pump and water tank or water contamination of foam tank.

Components of the complete proportioning system as described above shall include:

- Operator control and display.
- One (1) Paddlewheel flowmeter.
- Pump and electric motor/motor driven.

- Wiring harnesses.
- Foam injection check valve.
- One (1) Low-level foam tank switch.

Installation and operation manual shall be provided for the unit, along with a one-year limited warranty.

The system shall be plumbed to the front bumper discharge, Three (3) 1-1/2" crosslay discharges, and the booster reel.

Provide a 500 gpm foam manifold.

Check valve plate shall be modified for Auxiliary Pump.

Provide check valve on Auxiliary pump suction plumbing.

Complies Y N

FOAM SYSTEM PLUMBING

All discharges that are connected to the foam system of the apparatus shall be plumbed with stainless steel plumbing and/or high-pressure hose.

Complies Y N

FOAM MANIFOLD DRAIN VALVE

The foam manifold shall be equipped with a drain. The valve shall be located on the pump operator's panel. The discharge from the valve shall be routed to below the apparatus.

Complies Y N

POLYPROPYLENE FOAM CELL

There shall be one (1) 20-gallon polypropylene foam cell incorporated into the polypropylene water tank.

There shall be one (1) pressure/vacuum vent installed on the foam tank.

Complies Y N

FOAM TRANSFER PUMP

There shall be a pre-plumbed, electric foam transfer pump for filling the foam cell (tank) from the ground near the operator's panel. The intake connection for the pump hose shall be made with a ¼ turn, "dry break" style connection, mounted low on the operator's panel. The ¼ turn connection shall be provided with a cap to prevent dirt and debris from entering it when the hose is not in use.

The department shall provide an example of the coupling and fitting at the pre-construction meeting.

Complies Y N

DELUGE MONITOR RISER

There shall be one (1) 4" riser for a deluge monitor installed on the apparatus above the pump in the dunnage area. The discharge shall be plumbed with 4" pipe and a 3-4" Hale Torrent SVS valve. A hand control gear actuator shall control the discharge and be located at the base of the riser.

Location of riser is critical. The monitor shall be able to clear the booster reel, auxiliary pump, and all of the dunnage build-up throughout 360 degrees of rotation when in the extended position

The deluge monitor, in stowed position, shall be below top of cab (with the combination nozzle installed) and not interfere with crosslay hose bed cover.

Complies Y N

AKRON 3433 HI-RISE DELUGE MONITOR

One (1) demountable Akron Apollo style 3433 deluge monitor shall be provided and installed. The monitor (in the extended position) shall allow for 360 degrees of rotation and be able to move 90 degrees above and 15 degrees below the horizontal.

The monitor shall be provided with:

- One (1) TFT MST-4NJ stacked tips.
- One (1) Akron style 3488 stream shaper.
- One (1) TFT MR series automatic nozzle.
- One (1) Akron portable base with two (2) 2 ½" inlets.

The color of the monitor shall remain the same as the monitor manufacturer's standard color.

Complies Y N

HI-RISER STOW INDICATOR

The Akron monitor shall be tied into the "Open Door" circuit to warn the driver when the monitor is not in the stowed position.

Complies Y N

WATER TANK

The water tank shall have a capacity of 500 U.S. Gallons. Certification of the tank capacity shall be recorded on the manufacturer's record of construction and shall be provided to the purchaser upon delivery of the apparatus.

The tank shall be located as deep in the body as possible to minimize hose bed height.

The tank shall be constructed with a tunnel, 26 ½" wide x 16" tall, running through the tank, front to rear to allow the storage of ladders and other long handle tools (see COMPARTMENT T1).

Complies Y N

UPF POLY TANK CONSTRUCTION

The UPF Poly-Tank ® IIE shall be constructed of 1/2" thick PT2E™ polypropylene sheet stock. This material shall be a non-corrosive stress relieved thermoplastic, natural in color, and U.V. stabilized for maximum protection.

Complies Y N

BOOSTER TANK

The booster tank shall be of a specific configuration and shall be so designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The top of the booster tank shall be fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removal.

Complies Y N

TANK BAFFLES

The transverse swash partitions shall be manufactured of 3/8" PT2E™ polypropylene (natural in color) and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of 3/8" PT2E polypropylene (natural in color) and extend to the floor of the tank through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions shall interlock with one another and be welded to each other as well as to the walls of the tank.

Complies Y N

TANK SUMP

There shall be one (1) sump in the bottom of the water tank. The sump shall be constructed as part of the tank. A 4" schedule 40 polypropylene pipe shall be installed that incorporates a dip tube from the front of the tank to the sump location. The sump shall have a combination clean out and drain that is easily accessible by the operator. All tanks shall have an anti-swirl plate located approximately 2" above the sump to prevent air from being entrained in the water while pumping.

Complies Y N

TANK FILL CONNECTION

All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and shall be capable of withstanding sustained fill rates of up to 1,000 GPM.

Complies Y N

TANK LID

The tank lid shall be constructed of 1/2" thick PT2E™ polypropylene to incorporate a multi three-piece locking design, which allows for individual removal and inspection if necessary. The tank lid shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions for maximum integrity. Each one of the lids shall have hold downs consisting of 2" polypropylene dowels spaced a maximum of 30" apart. These dowels shall extend through the covers and shall assist in keeping

the covers rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped 1/2" x 13" to accommodate the lifting eyes.

Complies Y N

TANK MOUNTING

The UPF Poly-Tank IIE shall rest on the body cross members in conjunction with such additional cross members, as required by the tank manufacturer.

The tank shall be isolated from the cross members through the use of hard rubber strips with, a minimum Rockwell Hardness of 60 durometer. Additionally, the tank shall be supported around the entire perimeter and captured front and rear as well as side-to-side to prevent the tank from shifting during vehicle operation.

Although the tank shall be designed on a free floating suspension principle, it shall be required that the tank have adequate hold down restraints to minimize movement during vehicle operation.

The tank shall be completely removable without disturbing or dismantling the apparatus structure.

Complies Y N

LIFETIME TANK WARRANTY

The tank shall have a lifetime warranty from the manufacturer as it is installed the vehicle. **NO EXCEPTION.**

Complies Y N

WATER TANK FILL TOWER

The tank shall have a combination vent and manual fill tower, marked "Water Fill." The fill tower shall be constructed of 1/2" PT2E polypropylene and shall be a minimum dimension of 8" x 8" at the outer perimeter. The tower shall have a 1/4" thick removable polypropylene screen and a PT2E polypropylene hinged-type cover.

The tower shall be located in the front left corner of the tank.

The hosebed walls around the fill tower shall have minimal footprint required to provide access to the fill tower and provide maximum hosebed space.

The fill tower area shall be self-draining downward and minimize water flow into the hosebed.

Complies Y N

UPF TANK OVERFLOW

The tank shall be equipped with a minimum of a 4" schedule 40 polypropylene overflow / air vent pipe. The pipe shall be installed in the fill tower and extend through the tank and dump to the rear of the rear axle.

Complies Y N

HOT DIPPED GALVANIZED CRADLE FOR WATER TANK MOUNTING

The tank mounting shall be a simple style cradle. This cradle shall be designed for the specific tank, and shall provide support in the areas and locations specified by the tank manufacturer. After fabrication the cradle shall be hot dip galvanized for maximum protection against corrosion.

The tank cradle shall have a lifetime warranty.

Complies Y N

TANK DRAIN VALVE

One (1) 1-1/2" tank drain valve(s) shall be provided under the tank sump. The valve shall have a locking lever to prevent accidental draining of the tank.

Complies Y N

FRC TANKVISION WATER TANK GAUGE

The level gauge shall have 9 super bright LEDs to show the tank volume. The display shall use a 2 dimensional 2-element lens to refract the light from the LEDs to provide full 180° visibility for the level indication. The gauge shall use a pressure transducer installed near the bottom of the water tank to determine the correct volume in the tank. The gauge shall be self-calibrating by filling the tank at a steady flow rate. Self-diagnostics capabilities shall be standard on all gauges. The gauge shall start to flash when the tank volume is at ¼ tank or less and use down scrolling LEDs to alert the pump operator when the tank is almost empty.

Complies Y N

REMOTE WATER TANK GAUGE

There shall be an additional FRC Tankvision water tank gauge mounted in the cab next to the auxiliary pump controls.

Complies Y N

FRC TANKVISION "CLASS A" FOAM TANK GAUGE

The level gauge shall have 9 super bright LEDs to show the tank volume. The display shall use a 2 dimensional 2-element lens to refract the light from the LEDs to provide full 180° visibility for the level indication. The gauge shall use a pressure transducer installed near the bottom of the foam tank to determine the correct volume in the tank. The gauge shall be self-calibrating by filling the tank at a steady flow rate. Self-diagnostics capabilities shall be standard on all gauges. The gauge shall start to flash when the tank volume is at ¼ tank or less and use down scrolling LEDs to alert the pump operator when the tank is almost empty.

Complies Y N

CONTROL PANEL

The left side of the pump enclosure shall be divided into two sections. The lower section shall be where all valve controls, the primer control, the discharge relief valve controls, and other mechanical controls are located. This surface shall be referred to as the "control panel".

All valve controls shall be the self-locking type, activated by ether direct control or with a direct linkage utilizing twist lock handles and universal ball swivels.

Complies Y N

INSTRUMENT PANEL

The surface above the control panel shall contain all instruments, gauges, test fittings, and optional controls. This surface shall be referred to as the "instrument panel". The instrument panel shall be independent and hinged and latched so that it may be opened. All instruments, gauges, and other equipment shall be installed with sufficient slack in any cabling, tubing, or plumbing to allow the panel to swivel to the fully open position.

The instrument and gauge panel shall be vertically hinged " swing out " to provide access for service.

The instrument panel shall also be weather proof, front and rear to protect all electrical connections.

Complies Y N

COLOR CODED LABELS

To improve identification of discharges and intakes, color coded tags shall be provided. The tags shall utilize an etching process to provide easy visibility and improved field service life. Tags shall be affixed using an industrial grade adhesive backing, eliminating the need for pop rivets or screws into the panel or control handle.

Complies Y N

RIGHT SIDE PUMP PANEL

A single panel shall be installed on the right side of the pump enclosure. This shall be the area where any right side discharges, inlets, steamers, and other pump-associated equipment are located. This panel shall be easily removable and held in place with quick release push latches. It shall be fully removable for pump and plumbing access without the need to use hand tools. Any electrical equipment that may be installed shall be equipped with connectors so they may be easily separated from the opening created when the below described front access panel is removed.

Complies Y N

PUMP PANEL LIGHTS

Stick lighting shall illuminate each the pump operator's control panel and the right side pump panel.

The pump panels lights shall become energized upon setting the parking brake so the gauge information provided can be consulted at any time the apparatus is parked.

A stainless steel shield shall be installed over the pump panel lights to further protect them from the elements and to act as a reflector for additional illumination.

Complies Y N

PANEL SURFACES

The control panel, instrument panel, and right side pump panel shall be fabricated from a minimum of 16-gauge stainless steel with #4 brushed finish.

Complies Y N

PUMP PANEL LIGHT SWITCH

There shall be an on/off switch located on the operator pump panel to control the pump panel lights.

Complies Y N

PRESSURE / VACUUM TEST PORTS

Class1 model 102089 pressure and vacuum test ports shall be provided on the pump panel.

Complies Y N

PUMP COOLER VALVE

Class1 model 34BV pump cooling control valve shall be provided on the pump panel.

Complies Y N

ENGINE COOLER VALVE

Class1 model 34BV engine cooling control valve shall be provided on the pump panel.

Complies Y N

COLOR CODED GAUGE BEZELS

All pressure gauges shall be provided with chrome bezels. Each bezel shall have color-coded corner sections to match each individual discharge outlet color.

Complies Y N

PRESSURE GAUGES FOR 1 1/2" AND 2 1/2" DISCHARGES

There shall be seven (7) individual pressure gauges installed on the pump panel. Each gauge shall read 0-400 PSI and shall be a minimum of 2-1/2" in diameter.

The gauges shall be freeze proof, backlit, equipped with an anti-vibration (damping) feature, and have glass faces. **NO EXCEPTIONS.**

Complies Y N

PRESSURE GAUGES FOR MONITOR AND 4" DISCHARGE

There shall be two (2) individual pressure gauges installed on the pump panel. Each gauge shall read 0-400 PSI and shall be a minimum of 3-1/2" in diameter.

The 3-1/2" gauges shall be for the right side large diameter discharge and monitor.

The gauges shall be freeze proof, backlit, equipped with an anti-vibration (damping) feature, and have glass faces. **NO EXCEPTIONS.**

Complies Y N

INSTRUMENT PANEL MASTER PUMP GAUGES

The vacuum and pressure gauges shall read 30"-0-400 PSI and be a minimum of 4-1/2" in diameter.

The gauges shall be freeze proof, backlit, equipped with an anti-vibration (damping) feature, and have glass faces. **NO EXCEPTIONS.**

Complies Y N

WHITE FACE / BLACK NUMERAL GAUGE DISPLAY

The master pump gauges and individual pressure gauges shall have a white face with black numbers and lettering. This shall provide a high contrast and allow the gauges to be easily read by the operator.

Complies Y N

CLASS1 ENGINE STATUS CENTER (ESC)

Installed at the pump operator's position shall be a Class1 Engine Status Center, electronic engine status display, "engine status at a glance". The ESC shall conveniently display all critical engine information in one location so the operator has easy access to this information during emergency situations.

The operator shall have the option for the display to read in English or metric values. An indicator on the face of the display shall indicate which format the gauge is currently displaying all values.

The display shall provide the following information to the operator: Engine RPM, Oil pressure, Coolant temperature, and Voltage. Alarm outputs shall be provided with the oil pressure, coolant temperature, and high or low voltage.

The display shall have an Engine "Status" message center to provide information from the electronic engine.

The display shall have an easy to read, bright red LCD display with a "touch pad" keyboard.

Complies Y N

DUNNAGE COMPARTMENT

There shall be a dunnage compartment above the pump compartment. The dunnage compartment shall be constructed of treadbrite.

Complies Y N

INDEPENDENT PUMP COMPARTMENT

The main body and the pump compartment shall be fabricated as individual units. Both the body and pump compartment shall be fabricated using precision holding fixtures to ensure proper dimensions. All attachment points shall be heavily reinforced.

Complies Y N

5052-H32 ALUMINUM

All body compartments shall be fabricated of 1/8", 5052-H32, smooth aluminum plate, minimum. The complete body shall be fabricated using break and bend techniques to form strong yet flexible Uni-Body structures.

The body shall be constructed in an extreme duty fashion to allow maximum apparatus life in both paved and unpaved road use and occasional off-road use.

Complies Y N

TRANSVERSE COMPARTMENT

COMPARTMENT P1

There shall be a transverse compartment located ahead of the fire pump module, behind the cab, and beneath the transverse hosebeds. This compartment shall be designated as P1 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 23" Wide x 45" High

This compartment shall be open from one side of the truck to the other above the frame rails and as deep as allowable in the area outside of the frame rails.

It shall be equipped with two (2) vertically hinged, individual doors (one on each side of the truck). The left side door shall be hinged on its left edge and the right side door shall be hinged on its right side.

The ladder tunnel protrusion and a section of the rear compartment wall shall be removable for pump access and maintenance.

Complies Y N

LEFT SIDE COMPARTMENTS

COMPARTMENT L1

There shall be an upper compartment located above and ahead of the rear wheels on the left side of the apparatus body. This compartment shall be designated as L1 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 60" Wide x 30" High

The compartment shall have a usable depth of 12 ½ " inches with the door closed. It shall be equipped with a single, horizontally hinged swing-up door with gas hold-open struts at each end.

COMPARTMENT L2

There shall be an upper compartment located above and behind the rear wheels on the left side of the apparatus body. This compartment shall be designated as L2 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 60" Wide x 30" High

The compartment shall have a usable depth of 12 1/2" inches with the door closed. It shall be equipped with a single, horizontally hinged swing-up door with gas hold-open struts at each end.

There shall be 12V power from the 10 amp Battery Saver circuit available in this compartment.

The bulkhead area between L1 and L2 shall be open as much as the structure of the build-up will allow.

COMPARTMENT L3

There shall be a compartment located in front of the rear wheels on the left side of the apparatus body. This compartment shall be designated as L3 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 28" Wide x 30" High

The compartment shall have a usable depth of 24" inches. It shall be equipped with a single, vertically hinged swing-out door.

COMPARTMENT L4

There shall be a compartment located in behind the rear wheels on the left side of the apparatus body. This compartment shall be designated as L4 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 40" Wide x 26" High

The compartment shall have a usable depth of 24" inches. It shall be equipped with double, vertically hinged swing-out doors.

Complies Y N

RIGHT SIDE COMPARTMENTS

COMPARTMENT R1

There shall be an upper compartment located above and ahead of the rear wheels on the right side of the apparatus body. This compartment shall be designated as R1 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 60" Wide x 30" High

The compartment shall have a usable depth of 12 1/2" inches with the door closed. It shall be equipped with a single, horizontally hinged swing-up door with gas hold-open struts at each end.

COMPARTMENT R2

There shall be an upper compartment located above and behind the rear wheels on the right side of the apparatus body. This compartment shall be designated as R2 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 60" Wide x 30" High

The compartment shall have a usable depth of 12 1/2" inches with the door closed. It shall be equipped with a single, horizontally hinged swing-up door with gas hold-open struts at each end.

The bulkhead area between R1 and R2 shall be open as much as the structure of the build-up will allow.

COMPARTMENT R3

There shall be a compartment located in front of the rear wheels on the right side of the apparatus body. This compartment shall be designated as R3 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 28" Wide x 30" High

The compartment shall have a usable depth of 24" inches. It shall be equipped with a single, vertically hinged swing-out door.

There shall be 12V power from the 10 amp Battery Saver circuit available in this compartment.

COMPARTMENT R4

There shall be a compartment located in behind the rear wheels on the left side of the apparatus body. This compartment shall be designated as R4 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 40" Wide x 26" High

The compartment shall have a usable depth of 24" inches. It shall be equipped with double, vertically hinged swing-out doors.

Complies Y N

NON-TRANSVERSE REAR COMPARTMENTS

Bulkheads shall be installed in the back of the lower left and right side compartments (L4 and R4) to separate them from the rear facing, low compartment.

Complies Y N

REAR COMPARTMENTS

COMPARTMENT T1 (LADDER TUNNEL)

There shall be an upper compartment located at the rear of the apparatus body below the hosebeds. This compartment shall be designated as T1 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 29" Wide x 17 1/2 " High

This compartment shall extend through the water tank (tank tunnel 26 ½" wide x 16" high) and be equipped with a single swing-up door, horizontally hinged. It shall have a gas hold-open strut and two (2) compartment lights in the rear area of the compartment.

This compartment shall be for storage of ladders and long handle tools. The following items shall be stored in the compartment

14' roof ladder (bottom of compartment)

24' two section, extension ladder (above roof ladder)

10' attic ladder (upper left corner)

Two (2) backboards (center top, above large ladders) measuring 16" W X 72" L X 2" H.

6' pike pole (upper right)

10' pike pole (upper right, below 6' pike)

60" pinch point pry bar (lower right)

The 24' two section, extension ladder shall not rest on the 14" roof ladder underneath it so that the roof ladder can be easily removed without removing the extension ladder.

The pinch point pry bar shall be securely retained in a metal bracket so that in the event of a crash it cannot slide forward, endangering the occupants of the vehicle.

COMPARTMENT T2

There shall be a lower compartment located at the rear of the apparatus body. This compartment shall be designated as T2 within these specifications and any ensuing paperwork or drawings after contract execution.

Door Opening - 48" Wide x 25" High

This compartment shall be 24" deep and be equipped with swing-out, double doors, vertically hinged.

COMPARTMENTS T3 AND T4

There shall be two (2) additional compartments in the rear sheet of the engine one on either side of the ladder compartment (T1). These compartments shall be designated as T3 (left) and T4 (right).

Door Openings – 10 ½ " Wide x 16 " High

These compartments shall be vertically hinged on their respective outboard edges, be self-draining, and sweep out style. These compartments should have push button latches and be 10" deep.

The upper edge of each diamond plate door shall be notched 2" (full width) and edged with rubber to allow storage of the hose ends from the rear hosebeds above.

All rear compartment doors shall be constructed of or faced with polished aluminum diamond plate (treadbrite) to match the rear sheet surface.

All rear compartments shall be flush with the rear sheet surface.

Complies Y N

COMPARTMENT SCUFF PLATES

Brushed stainless steel or aluminum angle scuff plates shall be installed in the bottom sill area of all major equipment carrying compartments to reduce paint damage from equipment. The scuff plates shall be attached using a permanent bonding double sided tape.

Complies Y N

SWEEP-OUT CONSTRUCTION

All side body, and rear lower (T2), compartments shall have sweep out type floors. All compartments shall be made to the largest practical dimensions to provide maximum storage capacity for fire department equipment.

Complies Y N

COMPARTMENT DOOR CONSTRUCTION

The compartment doors shall be of welded, double panel construction. **NO EXCEPTION.**

The outer panel shall be fabricated of .190 5052-H32 aluminum and the inner panel of .125 3003-H14 aluminum. There shall be a heavy-duty automotive type extruded rubber molding installed on the overlap area of the doors to insure a weatherproof seal and prevent water from collecting in the doorsills. All of the compartment doors shall have a polished stainless steel continuous hinge connected to both the body and the door with stainless steel bolts and nuts. The hinge pin shall be stainless steel with a minimum diameter of 1/4".

Complies Y N

COMPARTMENT DOOR HANDLES

Compartment door handles shall be Hansen 79L stainless steel recessed type with bi-directional bent "D" type handles. There shall be an adjustable Eberhard 3-106U single point center latch with double catch and striker furnished on all compartments. **NO EXCEPTION.**

Complies Y N

DOOR LOCKS

There shall be a lock on eleven (11) door(s). Key # 1250 shall be provided. Purchaser to denote which doors will be lockable at pre-construction meeting.

Complies Y N

COMPARTMENT DOOR HOLDERS

Cleveland style spring loaded door holders shall be furnished on all vertically hinged, swing-open compartment doors to hold the door in either the fully open or partially closed position. The spring-loaded door holder shall close the door automatically when it is positioned past center or return the door to the

fully open position if the center point is not reached and the door is released. A stainless steel tube shall be fitted to the door holder to limit the travel distance when the door is opened to prevent the compartment door from interfering with any other door in the immediate area.

Complies Y N

COMPARTMENT DOOR HOLDERS

Pressurized gas filled cylinders shall be furnished on all horizontally hinged, lift-up compartment doors to hold the door in the open position and assist in raising it. The gas filled cylinders shall assist in closing the door automatically when the door is positioned over center.

Complies Y N

SLIDE OUT REAR DECK STEP

There shall be one (1) slide-out full width step assembly provided at the rear tailboard area connected to the "Door Open" circuitry. This step shall be required to allow the rear tailboard step height to meet the requirements defined in NFPA 1901 while maintaining a 20 degree departure angle. The step assembly shall mount below the rear tailboard and shall be easy to position.

Provide two (2) "Pinch Point" warning labels on rear deck, one each side above the end of the step.

Complies Y N

REAR INTERMEDIATE STEP

There shall be an intermediate step across the rear sheet that is 8" deep and 2 ½" high that runs the full width of the back of the engine. It shall be between the upper rear compartments (T1) and the lower rear (T2). It shall be capable of supporting 500 lbs.

Complies Y N

STEPS

All steps shall have a surface area of at least 35 square inches and shall be able to withstand a load of at least 500 pounds. Steps shall be provided at any area that personnel may need to climb and shall be adequately lighted. Each folding step shall have two large open slots to prevent buildup of ice or mud and to provide a handhold when necessary.

Steps shall be provided in the following locations:

- Three (3) folding steps on the left front compartment
- Three (3) folding steps on the right front compartment
- One (1) fixed corner step on the back of the engine (left side) between the rear tailboard and the rear intermediate step.
- One (1) fixed corner step on the back of the engine (right side) between the rear tailboard and the rear intermediate step.

Complies Y N

RIGHT SIDE PUMP ACCESS DOOR

There shall be a door above the right hand side pump panel (aluminum treadbrite or brushed stainless steel) to allow access to the pump compartment. The vertically hinged panel may be of single pan design if it is sufficiently stiffened and shall be positively latched in the closed position utilizing a pushbutton latch. A gas strut shall be provided on the door.

This door shall be wired into the hazard warning light circuit. An aluminum sill protector shall be installed on the bottom of the door opening to protect the paint from chipping and scratching.

Complies Y N

COMPARTMENT VENTING

Each body compartment shall be properly vented in a manner that will reduce the amount of dirt and water that may enter the compartment. Venting shall be directly to the atmosphere (NOT into another compartment). Additionally, each compartment shall be equipped with drain holes to allow standing water to exit.

There shall be screwed in plates installed over the vents in R2. There shall be NO drain holes or wiring holes in this storage compartment. Where wiring holes are necessary, they shall be properly caulked and sealed to prevent dust and moisture from entering.

Complies Y N

RECESSED HOSE COMPARTMENT - LEFT

There shall be one (1) compartment provided for storage of soft suction hose. The floor of the compartment shall be covered with Dura-Dek fiberglass slatted flooring. The compartment shall be located, recessed into the body beneath the left steamer inlet.

- There shall be storage capacity for two (2) 25' sections of 3" hose with 2 ½" couplings.

Complies Y N

RECESSED SUCTION HOSE COMPARTMENT - RIGHT

There shall be one (1) compartment provided for storage of soft suction hose. The floor of the compartment shall be covered with Dura-Dek fiberglass slatted flooring. The compartment shall be located, recessed into the body beneath the right steamer inlet.

- There shall be storage capacity for 25' of 4" LDH hose.
- The right side hose well shall be modified to accommodate a 4" donut roll.
- The hose well opening shall be designed to extend partially into the walkway.

Complies Y N

6" HARD SUCTION HOSE

There shall be two (2) sections of hard suction hose, 6" x 10', provided with the apparatus. They shall be individually mounted above the upper compartments on either side of the engine.

A 6" chrome plated strainer shall also be provided and shall not interfere with the hose mounts if it is stored on the hose.

Complies Y N

TREADPLATE OVERLAYS

Aluminum treadbrite plate overlays shall be sprayed with a clear coat sealer on backside that is pliable and resistant to scratches and chips to provide an insulating barrier between dissimilar metals when it is bolted to the body. After painting and final construction, overlays shall be additionally sealed at the edges with a caulking compound.

Overlays shall be installed that are totally insulated from the overlay with nylon shoulder washers that extend into the hole that is drilled into the aluminum. Stainless steel cap nuts shall be employed where bolts may damage equipment or cause injury.

Complies Y N

WALKWAYS AND OVERLAYS

The running boards and walkways shall be constructed of structural sheet metal that is integral with the body. They shall be overlaid with aluminum treadplate material to provide a slip resistant surface, resulting in a full 1/4" thickness for maximum strength.

Aluminum treadplate overlays shall be sprayed with a clear coat sealer on the backside that is pliable and resistant to scratches and chips to provide an insulating barrier between dissimilar metals when it is bolted to the body. After the apparatus is painted and the overlays are reinstalled, they shall be additionally sealed at the edges with a caulking compound.

Overlays shall be installed that are totally insulated from the overlay with nylon shoulder washers that extend into holes in the overlays. Stainless steel cap nuts shall be employed where bolt ends may damage equipment or cause injury.

Treadplate overlays shall be provided in the following areas:

- All walkways and running boards.
- The entire rear surface of the body.
- Outside front faces of the side compartments.
- The top surface of all side compartments, bending over the outside edge to form a drip rail.
- Front compartment vertical areas on both sides.
- The top surface of all side compartments, bending over the edge and then bending out, forming a drip rail.
- The rear surface of the body module between the rear compartment and the vertical handrail.

- The rear surface of the body module above the rear compartment extending in width between the hose bed risers.

Complies Y N

REAR WHEEL WELLS

The fenders shall be integral with the body sides and compartments with a seamless appearance. The fenders shall be fitted with bolt-in removable full circular inner liners in the wheel well area for ease of cleaning and maintenance. There shall be sufficient clearance provided in the wheel wells to allow the use of tire chains when the apparatus fully loaded.

Complies Y N

REAR FENDERETTES

Two (2) stainless steel fenderettes shall be installed at the outboard edge of the rear wheel well area, one on each side. The fenderettes shall be bolted to the apparatus body using nylon washers to space them slightly away from the body to reduce build-up of road grime. The fenderettes shall be constructed of stainless steel that has been polished to a high quality finish. **NO EXCEPTION.**

Complies Y N

BODY RUBRAILS

Rub rails shall be installed to protect the body from damage should the body be brushed or rubbed against another object. The rub rails shall be fabricated of 1-1/2 inch x 3/8-inch bar stock. The bar stock shall be highly polished and then Bright Dip anodized.

It shall be installed, spaced away from the body utilizing 5/8 inch, non-corrosive nylon spacers and secured with aluminum bolts. The ends shall be angled toward the body for safety and a pleasing appearance.

Complies Y N

REAR TOW EYES

There shall be two (2) rear tow eyes installed directly below the rear of the chassis frame rails. The tow eye shall be capable of a 15,000 lb. straight pull rating.

Additionally, the tow eyes shall be capable of a 5,000 lb. side pull rating.

Complies Y N

HANDRAILS

Handrails shall be constructed of ribbed extruded aluminum or stainless steel of not less than 1-1/4" in diameter. All railing escutcheons and brackets shall be stainless steel or chrome plated, and shall be bolted to the body with stainless steel bolts. The lower bracket on all vertical handrails shall have a drain hole drilled in it at the lowest point. Handrails shall be provided in the following areas:

- Horizontal handrail above the upper rear compartment at the bottom edge of the hosebed. This handrail shall extend from one side of the rear sheet to the other and be capable of withstanding a 500 lb. load.

- Above Front Grille - horizontal handrail.
- Install horizontal handrail above the grille the same width as the flush latches for upper grille.
- Grab handle on top of catwalk on the left side of the apparatus in front of the tank fill tower.
- Horizontal handrail above left side pump compartment.
- Horizontal handrail above right side pump compartment.
- Rear vertical handrail from top of body to rear step.

Complies Y N

GROUND LADDERS

The following ground ladders shall be provided with the engine (see COMPARTMENT T1 (ladder tunnel):

- One (1) 10' folding attic ladder(s), Duo Safety 585A
- One (1) 14' roof ladder(s), Duo Safety 775A
- One (1) 24' Two section extension ladder, Duo Safety 900-A

Complies Y N

PIKE POLES AND PRYBAR

There following long handle tools shall be provided with the engine, stored in tubes (see COMPARTMENT T1 (ladder tunnel):

- One (1) 10' Fiberglass Pike Pole, Zico IBM-10
- One (1) 6' Fiberglass Pike Pole, Zico IBM-6
- 60" pinch point pry bar, drop forged, made in USA.

Complies Y N

DRI-DEK COMPARTMENT FLOORING & LOWER TRAYS

All compartment floors shall be protected with Dri-Dek flooring tiles. In compartments that have shelves and pull-out trays, the tiles shall be provided in the shelves and trays as well. The tiles shall be black with yellow angled leading edges.

Complies Y N

SHELVING CHANNELS

There shall be parallel strut channels installed in compartments to provide for the adjustment of shelves.

In horizontally hinged compartments (L1, L2, R1, R2) it is desirable for the strut channels to be against the back wall of the compartment to provide for maximum versatility in mounting of equipment in the

compartments. Additionally, the strut channel spacing shall be equal in each compartment to allow interchangeability of shelving and back panels.

In vertically hinged compartments the strut channels shall be installed on the front and rear surfaces of the compartments, providing maximum weight bearing capacity for each shelf.

The shelving in each compartment shall be designed to provide for maximum adjustment and clearance of items such as wiring bundles, gas door struts, compartment lights, etc.

Complies Y N

ADJUSTABLE SHELVES

There shall be eight (8) vertically adjustable shelves installed on the apparatus. The shelves shall be constructed of 3/16" aluminum sheet with 1 1/2 " lips. The shelves shall have an abraded finish.

The shelves shall be fabricated to contain liquids when spilled.

The floor of the shelves shall be covered with Dri-Dek flooring tiles to provide drainage and ventilation of equipment.

The shelves shall be installed in compartments as follows: two (2) in P1 (one each in left and right side), L1, L4, R1, R2, R3, and R4.

The shelf in L1 (only) shall be either adjustable, or set at, a 15 degree angle downwards toward the operator

Complies Y N

ROLL OUT EQUIPMENT TRAY IN L3

There shall be one (1) rollout tray installed in compartment L3 for the (department supplied) PPV fan. The tray shall be provided with a Slidemaster™, roller type assembly. The roller assembly shall have a rated capacity of 150lb end load; 300lb distributed load, and shall have 100% extension capabilities.

A mechanical lock assembly shall be provided to lock the tray in the extended position and the retracted position. The tray shall be constructed of 3/16" aluminum sheet with 2" lips. The tray(s) shall have an abraded finish.

There shall be a minimum of 24" of clearance between the surface of the Dri-deck in the tray and the upper edge of the compartment.

Compartment Drain in R3 shall have a Duck Bill valve.

Complies Y N

ROLL OUT EQUIPMENT TRAY IN T2

There shall be one (1) rollout tray installed in compartment T2 for the (department supplied) Hurst tool set. The tray shall be provided with a Slidemaster™, roller type assembly. The roller assembly shall have a rated capacity of 350lb end load; 600lb distributed load, and shall have 100% extension capabilities. A mechanical lock assembly shall be provided to lock the tray in the extended position and the retracted

position. The tray(s) shall be constructed of 3/16" aluminum sheet with 2" lips. The tray shall have an abraded finish.

Compartment Drain in T1 shall have a Duck Bill valve.

Complies Y N

CHANNELS MOUNTED ON CEILING OF T1

There shall be one (1) set of strut channels installed on the rear compartment ceiling for mounting hydraulic reels. The channels shall run from the left to right sides of the compartment approximately 12" apart. They shall be securely bolted or welded and be capable of supporting up to three (3) (department supplied) hydraulic reels hanging from the ceiling.

Complies Y N

FALSE COMPARTMENT BACKS

There shall be false backs installed in compartments L1 and L2 to facilitate the mounting of equipment and brackets in these compartments. The false backs shall be made out of aluminum plate, minimum thickness .125" and shall bolt to the vertical strut channels running up the backs of the compartments.

The false back in compartment L1 shall start above the adjustable shelf with the adjustable shelf set 10" above the surface of the Dri-deck matting and be as tall as possible. It shall be as wide as the compartment opening will allow.

The false back in compartment L2 shall start approximately 1/8" above the Dri-deck matting on the floor of the compartment and be as large as the compartment opening will allow. It shall be as wide as the compartment opening will allow.

Complies Y N

AIR BOTTLE COMPARTMENTS

There shall be four (4) single cylinder air bottle compartments installed in the rear wheel well area. The tubes shall be rubber lined on the bottom half to reduce damage to the air cylinders. There shall be a drain hole in the rear of the compartment as well as rubber padding where the cylinder comes in contact with the back wall. Each single air bottle compartment shall have a Cast Products hinged door.

Complies Y N

HOSEBED CAPACITY

The rear hosebed shall have the capacity for the following hose load starting from the left side of the hosebed:

- 1000' of 4" hose
- 1000' of 2-1/2" hose
- 200' of 1-3/4" hose, nozzles and wye
- 150' of 2-1/2" hose, and nozzle

Complies Y N

HOSE BED FLOORING

The floor of the hose bed compartment shall be constructed of Dura-Dek fiber reinforced plastic material. The flooring shall be fabricated of "T" beam pultrusions in parallel connected with cross slats that are first mechanically bonded and then epoxied, forming a large sheet.

The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.

Each "T" beam shall be constructed utilizing a core of 250,000 continuous glass fiber strands that are high in resistance to tension, compression and bending. An outer sheath consisting of a continuous strand mat to prevent lineal splitting and shipping shall surround the core. The sheath shall also serve to draw the protective resin to the bar surface. Both reinforcements shall be pulled through an isophthalic polyester resin, treated with antimony trioxide for fire resistance, to form a solid length.

The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. The bright white coating shall be baked on.

Complies Y N

FUEL TANK GAUGE ACCESS

At the front of the flooring shall be a removable stainless steel cover to provide access to the tank gauge-sending unit without the need to remove the flooring.

Complies Y N

ALUMINUM HOSEBED PARTITIONS

Three (3) hose bed partition(s) shall be fabricated from 1/4" extruded aluminum plate. The adjustable hosebed dividers shall have maintenance free abraded finish.

The partition(s) shall be mounted on hot-dipped galvanized slide rails at the front and rear of the hose bed.

Where no obstruction such as a fill tower is present, the slide rails shall allow full movement of a hose partitions along the width of the hose bed. This shall provide the capability for variable hose load configurations & capacities.

Additionally, there shall be less than a 1/2" gap between the bottom of the hose bed partition and the Dura-Dek flooring. This shall prevent the chance of any hose becoming snagged in the hose bed during deployment.

Complies Y N

HORIZONTALLY SPLIT HOSE STORAGE AREA

There shall be one (1) horizontally split (hinged) hose storage area installed between the far right hosebed sidewall and the right-most hosebed divider. This hosebed divider shall be set at 8" from the right hosebed sidewall. The split hose storage area shall allow for storage of two (2) lines at the right rear of the apparatus.

The horizontal hinged divider shall be constructed of 3/16" slotted aluminum for drainage. The hinge line shall be approximately 16" from the floor of the hosebed.

Complies Y N

ALUMINUM HOSEBED COVER

The hosebed shall be covered with two (2) hinged aluminum doors. The doors shall be hinged on the outside edge to allow them to be lifted up and out towards the outside of the body. The doors shall be equipped gas strut(s) to hold the doors in the open position (up position) for ease in reloading hose.

The doors shall be tied into the open door circuit of the apparatus to warn the operator that the doors have been left up and open.

A center, stationary, hose bed divider shall be installed in the middle of the hose bed for support of the covers. There shall be two (2) recessed 4" diameter lights installed under each hosebed cover with one (1) at the forward and the other at the rear of the cover. There shall be four (4) grab handles on the cover, two (2) at the front, and two (2) at the rear.

Complies Y N

VINYL FLAP ON END OF HOSE BED COVER

There shall be a heavy-duty vinyl flap located on the rear of the hose bed cover installed on the apparatus. The flap will have a weighted bottom edge. The hose bed vinyl cover shall be red in color.

Flaps shall be weighted down by a 1-1/4" rubber hose filled with sand and sewn into the flap. Hard weights (metal, plastic, etc. are not acceptable.

Flaps to be shipped loose at delivery to prevent damage.

Complies Y N

WIRING HARNESESSES

Wiring harnesses shall be the automotive type, engineered specifically for the builder's apparatus, and shall meet the following criteria. Under no circumstances shall diodes, resistors, or fusible links be located within the wiring harness. All such components shall be located in an easy to access wiring junction box or the main circuit breaker area. All wire shall meet white book, baseline advanced design transit coach specification and Society of Automotive Engineers recommended practices. It shall be stranded copper wire core with cross-linked polyethylene insulation complying with SAE specification J1128. Each wire shall be hot stamp function coded every three inches starting one inch from the end and continuing throughout the entire harness. In addition to function coding, each wire shall be number and color-coded.

All terminals on the ends of the wiring harness shall be soldered unless a crimping tool or machine is used that gives an even and precise pressure for the terminal being used. All terminals shall be pull tested to insure their integrity.

Complies Y N

12 VOLT ELECTRICAL PANEL

A main electrical panel shall be located in a highly weather resistant compartment. The panel shall contain a board with permanent sockets for relays, diode blocks, and automatic reset circuit breakers. The board shall be screwed to the compartment and shall have permanent leads, each one routed to a predetermined pin of the correct main bulkhead connector. The bulkhead connectors shall be physically attached to the box in such a way as to afford easy access to the connectors. The connectors shall be the Deutsch series

with sealing plugs for any sockets not containing a wire. An "O" ring seal shall be an integral feature of the bulkhead connectors to eliminate the chance of water entering the connection and causing corrosion.

A minimum of ten (10), spare circuit breaker sockets shall be supplied. All sockets and equipment shall be clearly labeled.

Any circuit, which draws 15 nominal amperes, shall be switched through relays. Individual loads shall be wired to individual circuit breakers as much as possible. The circuit breakers shall be sized for the individual load rather than selecting a large circuit breaker and ganging loads on until amperage rating of the circuit breaker is reached.

Three harnesses, one for the cab, one for the pump compartment, and one main harness shall feed the main electrical panel from the body. The main body harness shall be connected to individual compartment harnesses, for the left and right side of the body. Each main body harness shall be equipped with several spare wires from one end of the harness to the other. At any place where the harness or sub-harness passes through metal, heavy grommets shall be installed to protect it.

Complies Y N

12 VOLT SYSTEM SCHEMATIC

A complete electrical schematic for the apparatus shall be provided. This schematic shall be specifically prepared for this individual unit rather than a generic schematic designed to accommodate all apparatus.

Complies Y N

ELECTRICAL MANAGEMENT SYSTEM

The apparatus shall be equipped with a multiplex system. The manufacturer of the multiplex system shall provide at a minimum three cities of reference that have at least 10 trucks operational for over a one year period. The multiplex system hardware that is being put into the apparatus of this bid shall be field proven for a minimum of two years. Any multiplex system that has less then 200 systems in vehicles with less then two years field time on the identical hardware that shall be put into the apparatus shall be excluded from this bid process. Any Multiplex system with a warranty higher then 1% over the past 2 years shall be excluded. There are several key benefits to multiplexing, one is to reduce the number of connections in a vehicles electrical system, because of this it is important to limit the amount of modules that control certain functions of the vehicle, therefore wherever it is stated that an "add-on" module will not be acceptable. **No Exceptions.**

Outputs:

The outputs shall perform all the following items without added modules to perform any of the tasks.

1. Load Shedding: The System shall have the capability to Load Shed with 8 levels any output. This means you can specify which outputs (barring NFPA restrictions) you would like Load Shed. Level 1 12.9V, Level 2 12.5V, Level 3 - 12.1V, Level 4 - 11.7V, Level 5 11.3V, Level 6 10.9V, Level 7 10.5V, Level 8 10.1V. Unlike conventional load shedding devices you can assign a level to any or all outputs. No add-on modules shall be acceptable; the module with the outputs must perform this function.
2. Load Sequencing: The System shall be able to sequence from 0-8 levels any output. With 0 being no delay and 1 being a 1 second delay, 2 being a 2 second delay and so on. Sequencing

reduces the amount of voltage spikes and drops on your vehicle, and can help limit damage to your charging system. No add-on modules shall be acceptable; the module with the outputs must perform this function.

3. Output Device: The System shall have solid-state output devices. Each solid-state output shall be a MOS-FET (Metal Oxide Semiconductor - Field Effect Transistors); MOS-FETs are solid-state devices with no moving parts to wear out. A typical relay when loaded to spec has a life of 100,000 cycles. The life of a FET is more than 100 times that of a relay. No add-on modules shall be acceptable; the module with the outputs must perform this function.
4. Flashing Outputs: The System shall be able to flash any output in either A or B phase, and logic is used to shut down needed outputs in park, or any one of several combined interlocks. The flash rate can be selected at either 80, or 160 FPM. This means any light can be specified with a multiplex truck with no need to add flashers. Flashing outputs can also be used to warn of problems or other unique idea you may come up with. No add-on modules shall be acceptable; the module with the outputs must perform this function.
5. PWM: The modules shall have the ability to PWM at some outputs so that a Headlight PWM module is not needed. No add-on modules shall be acceptable; the module with the outputs must perform this function.
6. Diagnostics: An output shall be able to detect either a short or open circuit. The System shall be able report in "real time" a text-based message that points the maintenance person to a specific output.

Inputs:

1. The inputs shall have the ability to switch by a ground or v-batt signal.
2. The inputs shall be filtered for noise suppression via hardware and software so that RF or dirty power will not trick an input into changing its status.

Automatic Climate Control:

The Multiplex system shall have the capability to provide automatic climate control, this shall occur by the use of PWM outputs and a Digital readout that combines other vehicle functions as well. The Climate control shall be an integral part of the Multiplex system. No add-on modules shall be acceptable; the module with the outputs must perform this function.

Auto-Throttle:

The Multiplex system shall be able to perform automatic high idle via a network gateway or by using an existing output on a module to provide the proper signals to an OEM Engine ECU. This task shall be handled with existing inputs and outputs. No add-on modules shall be acceptable; the module with the outputs must perform this function.

Displays:

Displays shall be able to provide real time information regarding Load Shedding and System Status, such as network traffic/errors or shorts and open circuits.

System Network:

The Multiplex system shall contain a Peer-to-Peer network. A Master Slave Type network is not suitable for the Fire/Rescue industry. A Peer-to-Peer network means that all the modules are equal on the network; a Master is not needed to tell other nodes when to talk.

System Reliability:

The Multiplex system shall be able to perform in extreme temperature conditions, from 40° to +85° C (-40° to +185° F.) The system shall be sealed against the environment, moisture, humidity, salt or fluids such as diesel fuel, motor oil or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over voltage and reverse polarity.

Complies Y N

12 VOLT SYSTEMS TEST

After completion of the unit, the 12 volt electrical system shall undergo a battery of tests as listed in the latest addition of NFPA Pamphlet 1901. These tests shall include, but not be limited to: a reserve capacity test, alternator performance test at idle, alternator performance test at full load, and a low voltage alarm test. Certification of the results shall be supplied with the apparatus at the time of delivery.

Complies Y N

REAR WORKLIGHT SWITCH

A switch shall be installed above the tail light bezel on the left side. The switch shall be wired to the backup lights to provide additional work lighting. The rear work light circuit shall be deactivated when the park brake is disengaged.

In addition to the lights being activated by the above switch, the lights shall also come on when the transmission is placed in reverse.

Complies Y N

MIDSHIP TURN SIGNAL

There shall be two (2) Whelen model 700 LED turn signal lights installed in the rear wheel well area, on each side of the body.

Complies Y N

LED CLEARANCE LIGHTS

LED clearance lights shall be installed on the rear of the body as necessary to be in full compliance with applicable ICC and DOT codes and regulations.

Four (4) side marker lights, Two (2) on each rear corner shall be Truck-Lite Model 35075R Red LED with mounting bracket.

Complies Y N

GROUND LIGHTING

Weldon model 9185-40003 lights shall be installed beneath the apparatus in areas where personnel may be expected to climb on and off of the apparatus. The lights shall illuminate the ground within 30" of the apparatus to provide visibility of any obstructions or hazards. These areas shall include, but not be limited to, cab doors, side running boards, and the rear step area.

Complies Y N

WALKWAY LIGHTS

Lights shall be mounted in a manner that illuminates all walkways and steps for safe operation of the apparatus. These lights shall become illuminated when the parking brake is engaged.

Complies Y N

AUDIBLE ALARM - DOOR OPEN

An audible alarm shall be provided and connected to the door open circuitry.

Complies Y N

COMPARTMENT LIGHTING

All compartments with vertically hinged doors shall be furnished with a Weldon model 9185-40003 light mounted in the upper portion of the compartment. An automatic door switch shall activate these compartment lights.

All compartments equipped with a horizontally hinged, lift-up door shall be equipped with two (2) Weldon model 9185-40003 lights recessed into the inner face of the door, one on each side. An automatic door switch shall activate these compartment lights.

There shall be one (1) additional compartment light installed under eight (8) adjustable shelves provided in the compartments. The lights shall be installed on the strut channels provided on the compartment wall. This shall allow the lights to be adjusted up and down with the shelves.

Further, lighting shall be installed in any compartment or enclosed, equipment area with four cubic feet of storage capacity or greater, or any compartment with a door opening of 144 square inches or more.

Complies Y N

PUMP COMPARTMENT LIGHTS

There shall be two (2) light(s) installed in the pump compartment. The light(s) shall be activated by an automatic switch in the right side pump compartment access door and shall be located in a manner that will provide maximum lighting.

Complies Y N

TAIL LIGHTS

There shall be two (2) Whelen 600 series LED tail light assemblies installed on the rear of the apparatus. Two (2) red LED stop/tail lights, two (2) amber LED turn lights, and two (2) clear back up lights shall be supplied. The lights shall be mounted in a cast housing, on each side of the apparatus.

Complies Y N

12 VOLT SCENE LIGHT(S)

There shall be two (2) Whelen 810CA0ZR scene light with 8-32 degree optics installed on the apparatus.

The lights shall be located on the rear of the truck.

Complies Y N

STREAMLIGHT RECHARGEABLE LIGHTS

There shall be two (2) Streamlight model SL-40SF high intensity rechargeable Light Boxes supplied and installed in the cab of the apparatus. The charging bases shall be wired to the battery saver circuit of the Kussmaul battery conditioner.

Install the Streamlight handheld flashlights in cab with one (1) each side of forward facing crew seats. Lights shall be mounted on the rear wall, low enough to be reached while standing on the ground outside the vehicle.

Complies Y N

INTERCOM SYSTEM

A FireCom Intercom Communication System (department provided) shall be installed in the apparatus.

The intercom shall be installed in the following positions: Driver, Officer, two (2) crew, and inside the left side door for P1.

The Driver and Officer will have Push to Talk (PTT) headsets.

Four (4) in cab headset jacks part # 800120

Complies Y N

ANTENNAE AND RADIO PRE-WIRE

In preparation for the installation of the (department provided) radio package:

There shall be three (3) shielded, co-axial antennae cables routed from the (department provided) roof mounted antennas to the central dash area between the driver and officer seats.

There shall be two (2) fused, 12v power wires terminated in the same area.

Two speakers mounted in the cab (location to be determined at the pre-construction meeting) with wires terminated in the same area.

Complies Y N

TELESCOPING 12 VOLT LIGHTS

There shall be two (2) Fire Research Optimum HID, 150 watt, 12 volt telescopic lights installed on the apparatus.

The lights shall be installed on the back of the cab with push-up poles.

Complies Y N

TELESCOPING LIGHT SWITCHES AT PUMP PANEL

There shall be two (2) switches on the pump operator's panel for the telescoping light(s).

Complies Y N

UPPER ZONE A VISUAL WARNING

There shall be one (1) Federal AeroDync, 72" long, light bar installed on the chassis cab roof. The light bar shall include: one (1) 3M Opticom; (2) 95 FPM rotators; (2) 175 FPM rotators; and (4) cascade mirrors. The light bar shall be equipped with all red lenses except the clear lens for the Opticom.

The clear section (Opticom) in the light bar shall be deactivated in the Blocking Right of Way mode.

Complies Y N

UPPER ZONE C VISUAL WARNING

There shall be two (2) Whelen Engineering model RB6PAP rotating beacons installed high at the rear of the apparatus. The one rotators shall have a red lens and the other, an amber. In addition to operating in other modes, the amber beacon shall be individually switch able.

Complies Y N

LOWER ZONE B VISUAL WARNING

There shall be one (1) Whelen Engineering model 60R00F*R LED lights with flanges installed in the lower warning zone. The lights shall have a red lenses.

Locate lower zone warning light as close as possible to center to allow for fuel door.

Complies Y N

LOWER ZONE C VISUAL WARNING

There shall be two (2) Whelen Engineering model 60R00F*R LED lights with flanges installed in the lower warning zone. The lights shall have a red lenses.

Complies Y N

LOWER ZONE D VISUAL WARNING

There shall be one (1) Whelen Engineering model 60R00F*R LED lights with flanges installed in the lower warning zone. The lights shall have a red lenses.

Locate lower zone warning light as close as possible to center to allow for fuel door.

Complies Y N

WHELEN "LED" TRAFFIC ADVISOR

There shall be one (1) Whelen model TA850 "LED" Traffic Advisor installed on the apparatus. The traffic advisor may be mounted in one of two places depending on the bidder's design of the apparatus:

either
recess mounted in the rear of the body above the rear compartment (T1) and beneath the handrail

or
recess mounted in the full width intermediate step.

A basic controller shall be supplied and installed in the cab to control the traffic advisor.

The traffic advisor shall have a three-way switch for Master and Manual activation.

Complies Y N

THERMOPLASTIC COATING

In the designated areas, Line-X™, a two component spray-in-place thermoplastic polyurethane system shall be used for maximum protection of the body and equipment. The system shall utilize flexible 100% solids applied with high-pressure impingement-mix polyurethane dispensing equipment.

The coating shall be a fast cure, textured surface, multi-purpose material designed for commercial and industrial applications. It shall exhibit excellent adhesion to the body and serve as a protective, abrasion resistant liner where applied.

The density of the material shall be a minimum of 70 PCF as measured using ASTM test method D-1622.

The taber abrasion resistance shall be a minimum of 0.03% per 1000 cycles as measured utilizing ASTM test method D-4060.

The minimum tensile strength as measured using ASTM D-2370 shall be 1540 pounds per square inch.

Complies Y N

BODY COMPARTMENTATION COATING

The interior of the body compartments shall be coated with a gray thermo-plastic polyurethane coating. The coating shall be durable enough to withstand everyday abuse of equipment removal and shifting.

Complies Y N

BODY COMPARTMENTATION DOOR PANS COATING

The body compartment door pans shall be coated with a gray thermoplastic polyurethane coating. The coating shall be durable enough to withstand everyday abuse of equipment removal and shifting.

Complies Y N

BODY PAINT PREPARATION

After the body and components have been fabricated and assembled they shall then be disassembled prior to painting so when the apparatus is completed there shall be finish paint beneath the removable components. The body shall be totally removed from the chassis during the painting process to insure the entire unit is covered. The apparatus body and components shall be metal finished as follows to provide a superior substrate for painting.

All aluminum sections of the body shall undergo a thorough cleaning process starting with a phosphoric acid solution to begin the etching process followed by a complete rinse. The next step shall consist of a

chemical conversion coating applied to seal the metal substrate and become part of the aluminum surface for greater film adhesion.

After the cleaning process the body and its components shall be primed with an epoxy primer and the seams shall be caulked.

All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be heavily chrome plated. Iron fittings shall be copper under-plated prior to chrome plating.

Complies Y N

PAINT PROCESS

The paint process shall follow the strict standards as set forth by PPG Fleet Finish Guidelines.

The body shall go through a three-stage paint process: Primer Coat, Base Coat (Color), and Clear Coat. In the first stage of the paint process the body shall be coated with PPG DPHS-52 Low VOC / High Solids epoxy primer to achieve a total thickness of 2-4 mills. In the second stage of the paint process the body shall be painted with PPG DBHS Delta Base Coat (color as per customer specifications). A minimum of two to three coats of paint shall be applied to achieve hiding. In the final stage of the paint process the body shall be painted with PPG DCU-2002 Clear Coat. A minimum of two to three coats shall be applied to achieve a total dry film thickness of 2-3 mills.

As part of the curing process the painted body shall go through a baking process. The painted components shall be baked at 185 degrees for 3 hours to achieve a complete coating cure on the finished product.

After bake and ample cool down time, the coated surface shall be sanded using 3M 1000, 1200, and or 1500 grit sandpaper to remove surface defects. In the final step, the surface shall be buffed with 3m Super-duty compound to add extra shine to coated surface. No more than .5 mil of clear shall be removed in this process.

Complies Y N

APPARATUS BODY COLOR

The apparatus build-up shall be painted red with PPG polyurethane enamel paint (PPG# DBHS – 72626).

Complies Y N

TOUCH UP PAINT

Two (2) four ounce bottle of acrylic enamel touch-up paint shall be supplied (one of each color).

Complies Y N

REFLECTIVE STRIPING ON DOOR PANS

There shall be white reflective striping located on the interior of all vertically hinged compartment doors. The striping shall consist of 1/2" striping installed on outer inside vertical edge, next to weather striping to provide warning indication to oncoming traffic.

Complies Y N

NFPA COMPLIANT REFLECTIVE STRIPING

Reflective striping shall be applied to the exterior of the apparatus in a manner consistent with the National Fire Protection Association Pamphlet 1901, 2003 edition. It shall consist of a straight, 6" wide stripe along the front of the chassis and along the sides, staying below the tops of the wheel well areas. A 6" wide stripe shall be applied across the rear of the apparatus. The reflective striping shall be white in color.

Complies Y N

NO - UNDERCOATING

Do not undercoat the vehicle.

Complies Y N

MUDFLAPS

Four (4) mud flaps shall be installed on the apparatus, two at the front and two at the rear. The mud flaps shall be a minimum of 3/8" thick to prevent "sailing".

Complies Y N

ZICO WHEEL CHOCKS

One (1) pair of Zico AC-32 chocks shall be provided with the apparatus. The wheel chocks are to be stored in heavy duty brackets formed out of .100 thick stainless steel plate (minimum) mounted under the left rear compartment (both chocks) and shall not interfere with the departure angle of the vehicle.

Complies Y N

CHASSIS BUILDER SUPPLIED HEAT EXCHANGER

The engines (chassis or auxiliary) providing power to drive the fire pump, shall have a supplementary cooling system that uses water from the discharge side of the pump to cool the engine coolant through the use of a closed heat exchanger. The water from the pump and the engine coolant shall not be intermixed. A valve on the pump operator's station shall control this cooling system.

Complies Y N

FUEL FILL

The vehicle fuel fill shall be located in the left rear wheel well area. The fuel fill shall have a Cast Products aluminum door with bezel installed.

Because of limited space the fuel fill door shall be made by Cast Products to minimize door size.

Complies Y N

ADDITIONAL FUEL FILL

There shall be an additional fuel fill located in the right rear wheel well area. The fuel fill shall have a Cast Products aluminum door with bezel installed.

Complies Y N

FUEL TANK GAUGE ACCESS PANEL

There shall be a removable panel provided in the rear compartment to allow for access to the fuel tank gauge without removing the fuel tank.

Complies Y N

GROUND LIGHTING

Lights shall be installed beneath the apparatus in areas where personnel may be expected to climb on and off of the apparatus. The lights shall illuminate the ground within 30" of the apparatus to provide visibility of any obstructions or hazards. These areas shall include, but not be limited to, cab doors, side running boards, and the rear step area.

Complies Y N

CHROME EXHAUST EXTENSION

There shall be a chrome extension provided on the chassis exhaust that is compatible with Plymo-Vent exhaust extraction systems. **NO EXCEPTION.**

Complies Y N

HOOKS ON REAR WALL FOR TURNOUT GEAR

There shall be two (2) KSM Model # 401 Rope Hook provided on the rear wall of the cab. The clips shall be mounted on a 12" x 12" stainless steel plate. The hooks shall be used for the storage of turnout gear. Install a 12" X 12" Stainless Steel Backing Plate behind the Turnout Gear Hooks.

Complies Y N

FRONT BUMPER HOSE COMPARTMENT COVER

There shall be one (1) hinged aluminum treadbrite cover(s) installed on the front bumper hose compartment(s). Hosewell cover will be held open with a gas shock. Hosewell cover will have flush push type latches.

Cover shall be notched on discharge side to allow hose to be pre-connected while in hose well with cover closed.

Complies Y N

CHASSIS MANUFACTURER PROVIDED MANUAL CAB LIFT LOCATION

The manual cab lift shall be provided in such a place as to be accessible on the completed apparatus. After body installation, the apparatus manufacturer shall relocate the existing cab lift in cases where it was installed in an inaccessible area. The end result shall be a manual cab lift that is both accessible & usable after the body and all equipment have been installed on the apparatus.

Mount Manual Cab tilt unit in the RH upper rear section of the pump compartment accessed through the RH pump access door.

Complies Y N

CHASSIS MODIFICATIONS

Install Aluminum Treadbrite overlay on the top face of Front Bumper, each side of hosewell.

Provide key locks for compartment under Driver's and Officer's Seat.

Install chassis manufacturer supplied skid plate for protection of air cleaner intake on RH side.

Install Treadbrite overlay on rear outer face of cab at running board, 18" high.

Reposition wire braided hose and wiring harness in front of radiator.

Check and adjust chassis ride height for level.

Raise muffler 4- 6" for ground clearance.

Provide ID label "USE EXTENDED LIFE COOLANT" at Radiator fill.

Relocate the relay valve for the front brake control, raise it higher. (see pictures)

Mount chassis supplied Kussmaul Charger inside an underseat storage compartment, toward front.

Locate the Kussmaul Charger LED display on the pump operator's panel.

Complies Y N

AS BUILT DIAGRAMS

There shall be a quantity of one (1) of the "As built" wiring diagrams supplied for the entire order.

Complies Y N











**DETAILED SPECIFICATIONS
PROPOSED EXCEPTIONS**

(Attach additional sheets, if necessary)

Specifications

Proposed Exception

**DETAILED SPECIFICATIONS
OPTIONS
(Attach Additional Sheets if Necessary)**

Option

Price

EXHIBIT B

PARTS NOT AVAILABLE THROUGH RETAIL

EXHIBIT C

**NAME AND LOCATION OF TECHNICAL SERVICE
AND PARTS REPRESENTATIVES**