

**LAYTON CITY FIRE DEPARTMENT
REQUEST FOR PROPOSAL
FOR A NEW 1500 GPM RESCUE PUMPER**

BID SPECIFICATIONS FOR A TRIPLE COMBINATION PUMPER

VENDOR PROPOSALS DUE BACK

All proposals offered under this specification are due back to the Layton City Fire Department on or before Tuesday, August 2nd, 2007 at 10:00 a.m. at which time each bid will be opened and the review process started. Proposals may be mailed or hand delivered to Layton Fire Station #51:

Captain Val King
Layton City Fire Department
530 North 2200 West
Layton, Utah 84041
(801) 336-3940
(801) 546-0901 fax

Proposals should be sealed and clearly marked "2007 Rescue Pumper Proposal".

SPECIAL BID INSTRUCTIONS

Each of the following shall be clearly listed as individual line items on the bid price. There will be no exceptions to these line item listings.

- The total bid price shall include all fees, costs, training, and delivery associated with specified apparatus. Apparatus is purchased FOB to Layton City Fire Department.
- The bidder will indicate on a separate line any credit the purchaser may receive for prepayment. The purchaser, at its option, may prepay any or all of the cost of the apparatus.
- Each bid shall specify the number of calendar days, from day of order to delivery to Layton Fire Department.
- Total cost for inspection trips including number of trips and number of individuals per trip.

GENERAL INSTRUCTIONS

These specifications are written to be descriptive and set a minimum standard of quality and not to be restrictive. However, the Layton City Fire Department shall be the sole judge as to which bid constitutes the "lowest bid and/or most responsible offer". Price is only one consideration. Delivery time, ease of maintenance, service shop location, and quality are among other factors that will be considered in the award of the bid. Layton City does not bind itself to accept low bid. Layton City Fire reserves the right to accept or reject any or all proposals submitted under this request. Layton City

reserves the right to negotiate options with the successful bidder on equipment or other items specified by this proposal. Layton City reserves the right to negotiate payment terms and incentives with the successful bidder.

Any questions regarding these specifications during the bid process shall be made in writing or via email. All questions concerning this apparatus specification will be answered in writing within five (5) days of receiving written requests and as soon as possible via email. All questions should be directed to:

Captain Brad Wilkes
Layton City Fire Department
530 North 2200 West
Layton, Utah 84041
(801) 336-3940
(801) 546-0901 fax
801-807-8822 cell
bwilkes@laytoncity.org

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of a complete apparatus equipped as hereinafter specified. These specifications shall cover only the general requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. Apparatus proposed by the bidder shall meet the requirements of the National Fire Protection Association (NFPA) as stated in the current Pamphlet 1901 for Pumper Fire Apparatus.

Alternate methods and materials will be considered if the apparatus proposed by the bidder are accompanied by details proving them to be equal or superior in quality and/or workmanship.

Each bidder will have their Engineering department review these specifications and assure that the fire department has not specified any components that will not enhance or compliment each others demands for a class "A" fire apparatus or cause the apparatus to not comply with any D.O.T., N.F.P.A., or any other National or Utah State standard which applies to motorized fire apparatus. In the event that the fire department has made such errors, it will be the responsibility of the bidder to advise the fire department of the error and make recommendations for correction. Proposals should include the costs of said recommendations.

Bids are desired from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 15 years. Further, bidder shall maintain dedicated service facilities for the repair and service of products. Evidence of such a facility shall be included in bidder proposal.

Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be built. The bidder shall also show that the company is in position to render prompt service and to furnish replacement parts for said apparatus for a 15-year period as a minimum.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

Both chassis and body must be built in the United States or bid will be rejected immediately with no further explanation given or required.

DELIVERY

To insure proper break in of all components while still under warranty, **The Apparatus shall be delivered under its own power** - rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered. The truck shall remain insured by the builder until official acceptance by the buyer.

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, (2) complete sets of operation and maintenance manuals covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

LIABILITY

The successful bidder shall defend any and all suits and assume all liability for the use of any patented process including any device, or article forming a part of the apparatus, or any appliance, or any combination thereof, furnished under the contract.

SPECIFICATION BID REQUIREMENTS

Bidders shall also indicate in the "yes/no" column if their bid complies **on each item** (PARAGRAPH) specified. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page.

EXCEPTIONS

All exceptions shall be stated no matter how seemingly minor. Any exceptions not taken shall be assumed by the purchaser to be included in the proposal, regardless of the cost to the bidder. Item and page number as well as title of exception shall refer to exception explanations. Exceptions may be considered if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page.

Proposals taking total exception to specifications shall not be acceptable.

Also, bidders shall submit a detailed proposal. A letter only, even though written on a company letterhead, shall not be sufficient. Bid proposals shall be submitted in the same sequence as specifications for ease of evaluation, comparison and checking of compliance.

Y__N__

PERFORMANCE BOND

A 100% performance bond shall be issued to cover the total cost of the bid apparatus

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the International Association of Fire Chiefs and National Fire Protection Association.

Y__N__

PUBLIC LIABILITY INSURANCE

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of public liability insurance:

Products/Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Each Occurrence	\$1,000,000

Coverage shall be written on either a Commercial or Comprehensive General Liability forms. The policy shall be written on an occurrence form and shall include Contractual Liability coverage. The policy shall include purchaser as an additional insured as their interest may appear.

The required limits can be provided by one or more policies provided all other insurance requirements are met.

Coverage shall be provided by a carrier(s) rated "Excellent" by A.M. Bests.

Y__N__

UMBRELLA LIABILITY INSURANCE

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate:	\$10,000,000
Each Occurrence:	\$10,000,000

The policy shall be written on an occurrence basis and at a minimum provide the same coverages as Bidder's General Liability, Automobile Liability and Employer's Liability policies. Purchaser shall be included as an additional insured as their interest may appear.

Bidder agrees to furnish purchaser with a current Certificate of Insurance with the coverages listed above along with its bid. The certificate shall be made out to the purchaser and be an original, no photocopies shall be accepted. The Certificate of Insurance shall provide that purchaser be given 30 days advance notice of cancellation, non-renewal or material change in coverage.

Y___N___

QUALITY AND WORKMANSHIP:

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

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

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

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair.

PERFORMANCE TESTS AND REQUIREMENTS:

A road test shall be conducted with the apparatus fully loaded and a continuous run of ten miles or more will be made, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall furnish a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

A. The apparatus shall be capable of accelerating to 35 MPH from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.

B. From a steady space of 15 MPH the vehicle shall accelerate to 35 MPH within 30 seconds. This shall be accomplished without moving the gear selector.

C. The service brakes shall be capable of stopping the fully loaded vehicle in 35 feet at 20 MPH on level dry concrete highway.

D. The apparatus, fully loaded, shall be capable of obtaining a minimum speed of 50 MPH on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).

E. If optioned, the apparatus shall be tested and approved by the Underwriter's Laboratories Incorporated in accordance with their standard practices for pumping engines.

F. The Contractor shall furnish copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered.

If optioned, the vendor, at their expense, shall have the Underwriter's Laboratories Incorporated conduct the tests required by the Underwriter Laboratories Incorporated (Guide for the Certification of Fire Department Pumper subject 822 dated 1995 or latest). A copy of all tests shall accompany the Apparatus.

The contractor shall supply the final manufacturer's furnished certification of GVWR and GAWR on a nameplate affixed to the vehicle.

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

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

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

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

LIABILITY:

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

GENERAL CONSTRUCTION:

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

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

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

The unequipped personnel weight shall be calculated at 200 lbs. per person times the maximum number of persons that ride on the apparatus.

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

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

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

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

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

Y___N___

BID DRAWINGS

Drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus shall be required with the bid. The drawing shall include right, left, and rear views of the apparatus.

Y___N___

Large "D" size drawings of the units proposed, has been furnished with this proposal as specified.

Y___N___

APPARATUS TEST BY UNDERWRITERS LABORATORIES

The following Apparatus shall comply with all NFPA 1901 applicable regulations in effect as of the contract signing date. There shall be multiple tests performed by the contractor and Underwriter's Laboratories when the apparatus has been completed. The manufacturer shall furnish the completed Test Certificate(s) to the purchaser at time of delivery. Since the inspection services of Underwriters Laboratories are available to all bidders on an equal basis, no other third party testing service shall be acceptable. The tests conducted on the apparatus shall include, but not be limited to:

Y___N___

PUMP & PLUMBING PERFORMANCE TEST

The apparatus pump and plumbing system shall be tested and certified.

Y___N___

12 VOLT ELECTRICAL TEST

The apparatus low voltage electrical system shall be tested and certified.

Y___N___

GENERATOR & 110/220-VOLT UL TESTING

The apparatus generator system shall be tested and UL certified.

FAILURE TO MEET TEST

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the bidder within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the bidder of such changes, shall also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the purchaser during the above-specified period with the permission of the bidder shall not constitute acceptance.

Y___N___

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) copies of apparatus manuals with all manufactured apparatus. The manuals shall include, but not be limited to: all component warranties, users manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information the apparatus manufacturer can supply to its customer regarding the said apparatus.

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

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

- Owner name and address;
- Apparatus manufacturer, model, and serial number;
- Chassis make, model, and serial number;
- GAWR of front and rear axles;
- Front tire size and total rated capacity in pounds;
- Rear tire size and total rated capacity in pounds;

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

Y___N___

FIRE STATION PRECONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a preconstruction conference at the fire departments station with individuals from the Layton City Fire Department to finalize all construction details.

Y___N___

ON-LINE CUSTOMER INTERACTION

The manufacturer shall provide the capability for online access through the manufacturer's web site. There shall be a dedicated section of the web site for customers to access the status of their apparatus during the construction phases. In this secured area customers will be able view specified digital photos of their apparatus during the construction phases. The following photos will be provided with this service:

1. Chassis (front, left and right side)
2. Body, pre-paint (front, rear, left and right side)
3. Body painted and pump module mounted (front, rear, left and right side)
4. Assembly (front, rear, left and right side)

Y___N___

GENERAL WARRANTY

A warranty shall be offered for each new fire apparatus manufactured for a period of one (1) year from the date of delivery, except for the commercial chassis and certain other components as noted in the next paragraph.

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities. Please see the official warranty document in the appendix (attached) for specific details.

Y__N__

STRUCTURAL WARRANTY

A structural warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of twenty (20) years. Please see the official warranty document in the appendix (attached) for specific details.

Y__N__

PAINT WARRANTY

A ten (10) year Paint Warranty shall be included with the apparatus. Please see the official warranty document in the appendix (attached) for specific details.

Y__N__

PUMP WARRANTY

The pump manufacturer shall provide a pump warranty for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of five (5) years. Please see the official warranty document in the appendix (attached) for specific details.

Y__N__

TANK WARRANTY

The tank manufacturer will provide a lifetime tank warranty. Please see the official warranty document in the appendix (attached) for specific details.

Y__N__

MULTI-PLEXED ELECTRICAL WARRANTY

A multi-plexed electrical warranty shall be provided by the apparatus manufacturer under normal use and service, for a period of four (4) years. One (1) year parts and labor remainder three (3) years parts only. Please see the official warranty document in the appendix (attached) for specific details.

Y__N__

MAXIMUM OVER ALL WIDTH OF NINETY-NINE (99) INCHES

The Apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Over All Width of Ninety-nine (99) Inches. This dimension shall include the

primary construction of the apparatus body and chassis cab. Any peripherals that are 'removable' shall not be incorporated into this measurement. Items that are considered 'removable' are Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, etc.

Y___N___

CAB AND CHASSIS

The cab and chassis shall be a superior grade, 148" minimum extended long four door, 10" raised roof over crew and driver-officer area, aluminum tilt cab, built specifically for the fire service. The cab and chassis shall meet the requirements of the National Fire Protection Association Standard 1901, (2003 edition or latest edition).

Y___N___

FLAT FLOOR ELFD 10" RAISED ROOF TILT CAB

The cab shall be a 148" minimum (extended long four door), 10" raised roof, aluminum tilt cab. The cab should be of superior grade. Entry level market cabs are not acceptable and should not be bid. Layton City Fire reserves the right to determine acceptance of cab grade.

The raised roof shall extend from the back of the cab to the center of the front doors to provide additional headroom for the driver and officer.

The cab shall be of an interior design allowing for easy communication inside the cab. The cab overall length shall be a minimum of 148.00" with 74.00" from the centerline of the front axle to the back of the cab.

The rear cab wall shall be .090" thick aluminum. The rear floor to the headliner height shall be 65.00".

The cab front skin and floor shall be .190" thick aluminum. The inside width shall be 90.00" and the front floor to headliner height above the driver and officer shall be 68.00".

All glass used in the cab shall be automotive tint. The windshield shall have a maximum of 2890 sq.in. area and be of the wraparound design 52.88" wide and 27.88" high for maximum visibility. Left and right windshield shall use the same interchangeable glass.

A molded rubber 11" grab handle shall be provided on the hinge post inside the cab at both the driver and officer door for entering and exiting the cab.

The driver and officer seats shall have an 8.25" high x 12.69" wide 15.13" deep compartment in the seat box beneath them. The compartment shall have a hinged door with an opening of 6.00" high x 12.50" wide.

Intermittent electric wipers with a single motor and electric powered "wet arm" type windshield washers shall be provided. Access to the wiper motor shall be through the driver's side headlamp module located on the front cab fascia.

Y___N___

CAB DOORS

The cab doors shall be flush, full length type with hidden .375" stainless steel door hinges. All doors shall be equipped with exterior pull handles, suitable for use with firefighter mittens, and keyed alike locks that are designed to prevent accidental lockout.

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

The front doors shall measure 43.00" wide x 77.00" high with .13" thick aluminum skins. The front steps shall be a two (2) step configuration with the lower step constructed of an open grate material and the intermediate step covered with embossed, NFPA compliant aluminum tread plate.

The following measurements shall apply:

First step: 11.44" deep x 31.13" wide

Intermediate step: 8.75" deep x 33.00" wide

Ground to first step: approximately 21.00"

First step to intermediate step: 11.00"

Intermediate step to floor: 11.00"

The rear doors shall measure 34.00" wide x 87.00" high with .13" thick aluminum skins. The rear steps shall be a two (2) step configuration with the lower step constructed of an open grate material and the intermediate step covered with embossed, NFPA compliant aluminum tread plate.

The following measurements shall apply:

First step: 12.13" deep x 20.44" wide

Intermediate step: 10.50" deep x 23.00" wide

Ground to first step: approximately 21.00"

First step to intermediate step: 12.50"

Intermediate step to floor: 12.50"

Y___N___

DOOR HANDLES EXTERIOR - BLACK

The cab door exterior pull handles (4) shall be FRP composite with a black matte finish.

Y___N___

FRONT AND REAR ROLL DOWN DOOR WINDOWS

The front doors shall have a full roll down window 27.00" x 26.00" with a total glass area of 702 square inch each.

The rear doors shall have a roll down window 27.50" x 26.00" with a total glass area of 715 square inch each.

Y___N___

FABRIC COVERED SEATS - DURABLE BALLISTIC POLYESTER

The seats shall be covered with a high strength, wear resistant fabric of durable ballistic polyester. A PVC coating is bonded to the backside of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids.

Y___N___

SEAT COLOR

All seats supplied on the chassis shall be dark red in color.

Y___N___

SEATBELT WARNING SYSTEM

A seatbelt use warning system shall be installed in the chassis. The system will provide a visual and audible warning when all of the following conditions are met.

- 1.) Any seat is occupied (sixty pounds minimum).
- 2.) The corresponding seat belt(s) remains unfastened.
- 3.) The park brake is released.

Once activated, the visual and audible indicators will remain active until all occupied seats have the seat belts fastened.

Y___N___

DRIVER SEAT

The driver's seat shall be a six-way electric Seats Inc. 911 high back seat and shall include a tapered and padded seat cushion and back with mechanical suspension.

The seat shall be an ABTS (All Belts to Seat) type integrated red three-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The female seat belt clasp shall extend up from the seat base ~ 14" to be within easy reach of the occupant. The ABTS feature is an engineering break through where the passenger restraint harness is built into the seat module and meets the twenty "G" load test.

Standard seatbelt orientation - Integrated shoulder belt shall be oriented from outboard to inboard (buckle).

Y___N___

OFFICER SEAT

The officer's shall be a six-way electric Seats Inc. 911 high back seat and shall include a tapered and padded seat cushion and back with mechanical suspension.

The seat shall be an ABTS (All Belts to Seat) type integrated red three-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The female seat belt clasp shall extend up from the seat base ~ 14" to be within easy reach of the occupant. The ABTS feature is an engineering break through where the passenger restraint harness is built into the seat module and meets the twenty "G" load test.

Standard seatbelt orientation - Integrated shoulder belt shall be oriented from outboard to inboard (buckle).

Y___N___

FORWARD FACING FULL WIDTH SEAT BOX

A seat box 51-3/8" wide x 12" high x 25-1/4" deep shall be installed against the rear wall for seat mounting. The seat box shall be made from smooth aluminum and welded to the cab structure for seat mounting integrity. The seat box will be painted the cab interior color.

The front of the seat box shall have two (2) hinged doors with latches and openings 18" wide x 8-5/8" high to allow access for storage in the seat box.

Y___N___

FORWARD FACING SEATS

Two (2) forward facing crew area Seats Inc. 911 "Universal" SCBA high back individual seats shall be installed in the rear of the cab. The seats shall have a 12" wide center box with padded top separating the seats.

Each "Universal" high back seat shall include a tapered and padded seat cushion and back.

Each seat back shall include a vertically split hinged headrest and Zico "ULL" bracket with LLS strap. A removable padded cover shall be supplied over the SCBA cavity.

The seats shall be an ABTS (All Belts to Seat) type integrated red three-point shoulder harness with lap belt and an automatic retractor built into the seat assembly. The female seat belt clasp shall extend up from the seat base ~ 14" to be within easy reach of the occupant. The ABTS feature is an engineering break through where the passenger restraint harness is built into the seat module and meets the twenty "G" load test.

Standard seatbelt orientation - Integrated shoulder belt shall be oriented from outboard to inboard (buckle).

Two (2) Zico "ULL" brackets with LLS strap shall be mounted on the rear cab wall in the low position, one on each side of the forward facing seats.

Y___N___

CAB COMPARTMENTS WITH INTERIOR ACCESS

The cab shall contain an exterior compartment on each side of the cab behind the rear doors. The compartment opening shall be 16.25" wide x 21.19" high. The compartment size shall be 17.84" wide x 21.19" high x 21.19" deep. The compartment shall have a 17.13" wide, 32.00" high and 1.50" thick roll up door.

Interior seat storage access will be provided to the under seat storage areas through the exterior compartment. The height of the upper storage area will be 10.00" and depth will depend on the seat box. Outboard seat boxes provide an additional compartment on each side of the cab and full width seat benches provided a compartment transversing the complete cab.

Y___N___

CLASSIC FRONT FASCIA

The front cab fascia shall be constructed of aluminum, which will attach to the front cab skin and act as a fascia only.

The front fascia will cover the front aluminum cab structure from the bottom of the windshield down to the bottom of the cab. The front cab fascia shall have provisions for four (Hi/Low Beam) headlamps, turn signal lamps and up to four warning lamps.

The front fascia shall allow access to check and fill the engine oil and wiper washer fluid. Access is also provided for servicing the windshield wiper motor and linkage, ember separator, headlamps, electrical bulkhead connectors, transmission ECU and the multiplex V-Mux control.

Y___N___

WARNING LIGHTS -INBOARD

Two (2) Whelen 4x6 LED red warning lights shall be installed on the cab fascia above the headlamps in the inboard position.

Y___N___

HEADLIGHTS

Four (4) rectangular halogen headlamps with a 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 master switch is in the "On" position and the parking brake is released.

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

Y___N___

TURN SIGNALS - AMBER LED

Two (2) Whelen 4x6 amber LED programmable turn signals shall be installed outboard of the warning lights in matching bezels located above the headlamps.

Y___N___

FRONT GRILLE RAISED

A two (2) piece, hinged stainless steel raised front grille 39"W x 33.50"H x 1.50"D, with a minimum free air intake of 632.9 square inches shall be installed on the front of the cab. The upper portion of the grille will be hinged and will have two (2) flush push button latches that allow access to the front fluid fills of the cab.

Y___N___

CAB MIRRORS

Two (2) Retraco West Coast style mirrors model 1178H shall be provided. The mirrors shall be Dual Vision, motorized and heated with 7" x 14" head and a convex in the lower portion of the mirror head. The mirror heads shall be mounted on stainless steel bow swing away type arms mounted to the cab doors. The mirror head backs are mold injected vacuum formed composite chrome plated ABS.

Y___N___

CAB CRASH TEST ECE-29

Spartan Chassis, Inc. has successfully submitted their extruded flat floor cab to the International crash test ECE-29, Addendum 28, revision 1. As part of the ECE regulation 29 test, the frontal area of the cab is struck by a 3,700 pound pendulum weight. The weight is brought back to a sixty degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 lb. ft. of force to the cab front face. The cab must be so constructed that after the test, there will be minimal intrusion of cab structure into the passenger area. Note: After the test the Spartan cab doors remained usable for both entry and exit. Also, as part of the test the cab roof must withstand a static load-bearing test. The Spartan cab withstood a weight of over 60,000 pounds without permanent damage or collapse. The above tests were witnessed by and attested to by an independent third party. The test results were recorded on/by cameras, high-speed imagers, accelerometers and strain gauges. Notarized copies of the letters verifying the test results and videos of said test are available upon request.

Y___N___

ONE YEAR CHASSIS WARRANTY

The chassis manufacturer shall warrant to the original purchaser the custom fire truck chassis for a period of twelve (12) months with the exception of the actual fire apparatus chassis frame which carries 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.

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.

Y___N___

PAINT FRAME AND CHASSIS UNDER CARRIAGE

The chassis under carriage that consists of the axles, driveline running gear, battery boxes, air tanks and other assorted chassis mounted components shall be painted with standard black paint. The frame rails shall be powder coated black. Paint shall be applied before airlines and electrical wiring is installed.

Y___N___

CHASSIS WHEELBASE

The chassis wheelbase shall be clearly listed by the bidder.

Y___N___

FRAME

The frame side rails shall be black powder coated "C" channel type 10.25" x 3.5" x .38" with an inner channel 9.44" x 3.13" x .38" of 110,000 psi minimum yield high strength steel, a RBM of 3,315,214 inch pounds and a section modulus of 30.14 cubic inches.

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. All frame dimensional cutting shall be by a plasma cutter. All relief areas shall be cut in with a minimum 2" radius at intersection points with ground smooth edges to prevent a stress focal point.

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

Y___N___

OVERALL HEIGHT

The height of the vehicle shall not exceed 112" from the ground.

Y___N___

FUEL TANK

The fuel tank shall have a minimum capacity of fifty (50) gallons. The baffled tank shall be made of 14 gauge aluminized steel. The tank exterior is painted with a primer and topcoat. This results in a tank, which offers the internal, and external corrosion resistance and surface characteristics of aluminum with the strength, durability and economy of steel.

The fuel tank shall be mounted under the frame, behind the rear axle with a three-piece strap hanger assembly with a "U" strap bolted midway on the fuel tank front and rear so the tank can be easily lowered and removed for service purposes. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

The tank shall have a vent port to facilitate rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2"NPT fill ports for right or left hand fill. A .5"NPT drain plug shall be centered in the bottom of the tank.

The standard fuel line for ISC and ISL engines will be nylon material rated for diesel fuel. All other engines will be steel wire braid reinforced rubber.

Y___N___

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12" high and 101" wide.

The bumper shall be extended 21" ahead of the cab.

Y___N___

AIR HORNS

Dual Grover Stuttertone 24" air horns shall be recessed in the front bumper one (1) each on the driver and officer outboard mounting locations. A 3/8" airline "teed" equal distance from each horn shall be installed.

Y___N___

ADDITIONAL AIR RESERVOIR

An additional 1200 cubic inch 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. This reservoir shall be mounted in such a manner, as not to hang down below the bottom of the chassis frame at any point and all tubing shall be protected from road debris.

Y___N___

APRON WITH HOSEWELL AND COVER

A 3/16" bright embossed aluminum tread plate apron with a hosewell built into the center shall be installed between the bumper and the face of the cab. A hinged aluminum treadplate cover with D-ring latch and gas cylinder shall be installed into the hosewell.

Y___N___

TOW HOOKS

Two (2) heavy-duty chrome plated tow hooks shall be installed under the bumper and bolted directly to the chassis frame with grade "8" bolts.

Y___N___

AIR HORN ACTUATION

The steering wheel horn button shall accomplish air horn actuation and a right side officer's mounted Linemaster SP491-S81 foot switch.

Y___N___

SPEAKERS CPI

Two (2) Cast Products Inc. bright aluminum 100-watt speakers shall be recessed in the front bumper, one each outboard on the driver's and officer's side.

The speakers shall be bolted to bumper by means of a polished aluminum trim ring on the front face of the bumper.

Y___N___

FRONT AXLE

The front axle shall be an independent front suspension to provide superior ride and handling. The suspension shall use optimized air springs and double wishbone arms to ensure maximum load stability and driver comfort.

Dual air height control valves shall be installed to ensure equal frame height on both sides of the vehicle regardless of load.

It shall have a capacity of 20,000 pounds GAWR.

Y__N__

STEERING

The dual hydraulic power assist steering gears shall be TRW TAS-85 and RCS-85. The steering ratio shall be 23.3:1 and have 6.2 turns stop to stop.

Y__N__

FRONT TIRES

The front tires shall be Michelin 385/65R 22.5 18PR "J" tubeless radial XFE highway tread with 22.5 x 12.25, ten (10) stud disc wheels. The tires and wheels shall be rated at 20,000 pounds.

Y__N__

FRONT AXLE CRAMP ANGLE

The hub piloted, MFS-20 front axle cramp angle shall turn 48 degrees to the left and a minimum of 44 degrees turning to the right, when using the 385/65R 22.5 front tires.

Y__N__

FRONT WHEELS ALUMINUM

The front wheels shall be Accuride hub piloted, 12.25" x 22.5" polished aluminum wheels.

Y__N__

FRONT WHEEL BEARINGS OIL LUBRICATED

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

Y__N__

FRONT SHOCK ABSORBERS

Two (2) Bilstein monotubular design, nitrogen gas charged shock absorbers shall be part of the front axle suspension. Bilstein shall warranty the shock for a period of five (5) years.

Y__N__

FRONT DISC BRAKES

The front axle shall have Bendix ADB 225 disc brakes with 17" vented rotors and internal automatic brake adjustment.

Y___N___

CHASSIS ALIGNMENT

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

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

Y___N___

STEERING COLUMN AND WHEEL

The Douglas Autotech steering column shall be a seven (7) position tilt and 2.25" telescopic type with an 18" steering wheel. 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.

Y___N___

REAR AXLE

The rear axle shall be an ArvinMeritor model RS-26-185 with single reduction gearing and shall have a fire service rated capacity of 27,000 pounds GAWR.

Y___N___

TOP SPEED

The top speed of the vehicle shall be approximately 65 MPH +/-2 MPH at governed engine RPM.

Y___N___

REAR BRAKES

The rear brakes shall be ArvinMeritor 16.5" x 7" S-cam type with ArvinMeritor automatic slack adjusters.

Y___N___

ABS BRAKE SYSTEM

A Meritor Wabco four sensor four modulator anti-lock braking system shall be installed on the front and rear ArvinMeritor axles for safer vehicle control during braking and reduced stopping distance in skid conditions.

The electronic monitoring system shall incorporate diagonal circuitry to monitor wheel speed during braking through a sensor and tone ring on each wheel.

A dash mounted ABS 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 codes.

The ABS system shall automatically disengage the auxiliary braking system device when required.

The Meritor Wabco ABS system shall have a three (3) year or 300,000 mile warranty provided by Meritor Wabco Vehicle Control Systems.

Y___N___

REAR TIRES

The rear tires shall be Michelin 12R 22.5 16PR "H" tubeless radial XDN2 all-weather tread with 22.5 x 8.25, ten (10) stud disc wheels. Tires and wheels shall be rated at 27,120 pounds.

Y___N___

REAR WHEELS ALUMINUM

The single rear axle wheels shall be Accuride hub piloted, 8.25" x 22.5" polished aluminum wheels.

Y___N___

OIL LUBRICATED REAR WHEEL BEARINGS

The rear axle shall have oil lubricated wheel bearings.

Y___N___

REAR SUSPENSION

The rear suspension shall be a Reyco 79KB 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.

Y___N___

AIR BRAKE SYSTEM - SINGLE AXLE

A rapid build-up air brake system shall be provided. It shall include a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. The air tanks shall be labeled for each of their functions.

A Meritor-Wabco floor mounted treadle valve shall be mounted in the cab for graduated control of applying and releasing brakes.

A Meritor-Wabco inversion valve shall be installed to provide a service brake application with no primary air supply.

A Meritor-Wabco yellow hand control push-pull valve shall operate the parking brake system.

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

Y___N___

PARKING BRAKE ACTUATION VALVE

The parking brake actuation valve shall be mounted on the LH dash within easy reach of the driver.

Y___N___

TELMA RETARDER

A Telma electric driveline retarder shall be focal mounted on the ArvinMeritor axle and have modulated actuation with the brake pedal. Four lamps shall be installed on the instrument panel to indicate the progressive stages of vehicle retardation.

Y___N___

AXLE COVER KIT STAINLESS STEEL (ALL WHEELS)

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.

Y___N___

AIR DRYER

A Meritor Wabco system saver 1200 spin-on desiccant air dryer with a 12-volt, 100-watt automatic heated moisture ejector shall be installed in the air brake system.

The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure.

The Meritor Wabco air dryer shall come with a three (3) year or 300,000 mile warranty provided by Meritor Wabco Vehicle Control Systems.

Y___N___

MANUAL DRAINS ON AIR TANKS

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

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.

Y___N___

ENGINE

A Cummins 2007 EPA compliant ISM-500, turbocharged, charge air cooled engine shall be provided.

TYPE:

In-Line six (6) cylinder, 4 cycle

HORSEPOWER:

500 HP @ 2100 rpm (Governed @ 2400 rpm)

TORQUE:

1550 lbs.ft. @ 1200 rpm

DISPLACEMENT:

661 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 multiplexed gauges, hand throttle, high idle and PSG system. A circuit for J1939 data link shall also be provided at the drop out.

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.

Y___N___

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers 20V and shall be gear driven from the engine. The pump shall be a fixed displacement vane type.

Y___N___

AIR COMPRESSOR

The air compressor on the engine shall be a Wabco capable of producing a minimum of 18.7 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.

Y__N__

ENGINE WARRANTY

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

Y__N__

FUEL FILTER - CUMMINS ENGINE

A Fleet guard fuel filter shall be installed on the Cummins engine.

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.

A DPF 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 DPF. System joints shall be connected with lapping band clamps.

Y__N__

2007 EXHAUST SYSTEM

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

A DPF 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 the exhaust pipe and DPF. System joints shall be connected with lapping band clamps.

Y__N__

COOLING SYSTEM

The cooling system shall have sufficient capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the engine and transmission manufacturer and EPA requirements. The complete cooling system shall be mounted in a manner to isolate the system from vibration and stress. The individual cores shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining core(s).

Radiator

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall have a minimum of a 800 sq. in. core and be bolted to the

bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

Surge Tank

The cooling system shall be equipped with a surge tank that is capable of being filled and removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a cap that meets the engine manufactures pressure requirements as well as the system design requirements.

Coolant

The cooling package shall have Extended Life Coolant (ELC) installed. The use of supplemental coolant additives (SCA) will not be allowed, as this is part of the extended life coolant makeup. The use of ELC provides longer life and change intervals providing improved performance. The coolant shall contain ethylene glycol and deionized water to keep the coolant from freezing to a temperature of -34 degrees F.

Hoses/Clamps

All radiator tubes shall be formed from aluminized steel tubing and installed with silicone hoses with stainless steel constant torque clamps.

Recirculation Shields

Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting the performance.

Charge Air Cooler

The charge air cooler shall be a cross-flow design constructed completely of aluminum with welded side tanks. The charge air cooler shall have a minimum of a 487 sq. in. core and be bolted to the top of the radiator to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

Hoses/Clamps

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "T" style clamps meeting the engine manufactures requirements.

Y___N___

COOLING SYSTEM FAN

The engine cooling system shall incorporate a heavy-duty composite fan, belt driven on the engine. A shroud and recirculation shield system shall be used to ensure air that has passed through the radiator is not drawn through it again.

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.

Y___N___

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator without a shutoff valve. The heat exchanger is designed 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 assisting in cooling the engine coolant.

Y___N___

TRANSMISSION

The transmission shall be an Allison 4000 EVS automatic with electronic controls. The transmission will 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 maximum approach angle by not protruding below the frame more than an inch. The transmission cooler shall be constructed completely of aluminum with welded side tanks. The transmission shall have two (2) internal oil filters.

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

The transmission gear ratios shall be:

1st	3.51:1
2nd	1.91:1
3rd	1.43:1
4th	1.00:1
5th	0.74:1
6th	0.64:1 (if applicable)
Rev	4.80

Y___N___

Transmission Cooler

The transmission cooler shall be a cross flow air to oil design constructed completely of aluminum with welded side tanks. The transmission cooler shall be bolted to the bottom of the radiator to allow a single depth core, allowing a more efficient and serviceable cooling system. The transmission cooler shall be mounted in such a manner as not to extend below the chassis frame by more than 1", allowing greater approach angles and ground clearance.

Transmission Heat Exchanger

The transmission oil to water heat exchanger shall be installed to aid in cold climate conditions maintaining the transmission temperature at the operational level.

Y___N___

SYNTHETIC TRANSMISSION FLUID

Castrol "Transynd" or an equivalent synthetic TES 295 transmission fluid shall be utilized to fill the 4000 EVS transmission.

Y___N___

TRANSMISSION MODE

The transmission, upon start-up, will select four (4) speed operation. By pressing the "mode" switch on the shift pad (mode on) provides five (5) speed overdrive.

Y___N___

TRANSMISSION WARRANTY

The Allison 4000 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.

The transmission must be filled with transynd synthetic fluid or approved equal.

Y___N___

ALTERNATOR

A 320 amp Leece Neville 12 volt alternator model #4890JB with internal regulator and #10 screw AC terminals shall be installed.

Y___N___

ENGINE OIL LEVEL CHECK

A low engine oil level switch shall be provided that will indicate when the engine oil is approximately four (4) quarts or more low. The switch shall light a red "LOW OIL LEVEL" indicator light in the dash. The indicator shall only function while the ignition switch is on and the engine is not running.

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.

Y___N___

STOP, TAIL, TURN AND BACK-UP LIGHT WIRING

Individual wires shall be run to the rear of the chassis for the stop light, turn signal, tail light and back-up lights.

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.

Y__N__

DRIVELINES

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

Y__N__

ELECTRICAL SYSTEM

A single starting system shall be installed per NFPA 1901. The electrical system shall be 12 volt, suppressed per SAE J551 with six (6) Harris CTX31S-9 950 CCA batteries with 210 minute reserve capacity and 3/0 welding type dual path starter cables per SAE J541. The cables shall be sealed and encapsulated in a rubberized compound and held in place with a double nut configuration to prevent loosening.

Wiring shall be appropriate gauge cross link with 311 degree F. insulation. All wires in the chassis shall be circuit numbered and function coded where possible, in addition the SAE wiring will be color coded. The wiring shall be protected by 275 degree F. minimum high temperature flame retardant loom.

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 (1) green LED indicator for battery "on".
- One (1) green LED indicator for ignition "on".

Y__N__

APPARATUS WIRING PANEL

An apparatus wiring panel shall be installed on the officer side bulkhead below the dash and shall include eight (8) open circuits with three (3) 20 amp, one (1) 30 amp, three (3) 10 amp and one (1) 15 amp relays and breakers with trigger wires run to the rocker switch panel.

Y__N__

ROCKER SWITCH CONSOLE

A three (3) section, double row switch console shall be provided and shall be an integral part of the engine tunnel, with easy switch access to both the driver and officer. The

console will consist of an angled driver's side panel, center main panel and angled officer's side panel.

The switch console shall not be an add on type console.

Y___N___

CENTER ROCKER SWITCH PANEL

The center main rocker switch panel shall include twelve (12) LED backlit and labeled rocker switches. The two (2) rows of switches shall be located in the left two sections of the center panel. The remaining right section of the panel shall be left free to accommodate flush mounted equipment.

Y___N___

OFFICER ROCKER SWITCH PANEL

The officer's side switch panel shall be a blank panel with no switches to accommodate flush mounted devices.

Y___N___

DRIVER ROCKER SWITCH PANEL

The driver's side panel shall include a rocker type headlight switch with instrument lamp slide dimmer, intermittent windshield wiper/washer switch and secondary braking device rocker switches.

Y___N___

CLASS ONE TOTAL SYSTEM MANAGER WITH AUTO HIGH IDLE

A Class One Total System Manager (TSM) load sequencing and shedding system shall be installed.

The sequencer system shall be capable of sequentially energizing up to twelve (12) preselected outputs, and capable of shedding up to eight (8) outputs.

The system shall also monitor the vehicle's battery voltage. When electrical loads exceed the alternator output of approximately 12.5 volts, pre-selected loads will begin to shut down.

A low voltage light and alarm with automatic high idle actuation enabled shall be part of the system.

An LED indicator shall be installed on the cab dash to indicate when the load shedding circuit is functioning.

Y___N___

BATTERY JUMPER STUDS

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

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The gauges shall be backlit with red LED lamps. All gauges shall be driven by stepper motor movements. The instrumentation system shall be multiplexed and shall receive engine and transmission information over the J1587 data bus to reduce the number of redundant sensors.

The instrument panel shall contain the following gauges:

One (1) electronic tachometer with integral digital hour meter. The scale on the tachometer shall read from 0 to 3000 RPM. The hour meter shall display engine hours of operation.

One (1) electronic speedometer with integral digital odometer/trip odometer. The speedometer shall have a dual scale with miles per hour (MPH) as the dominant scale and kilometers per hour (KPH) on the minor scale. The speedometer scale shall read from 5 to 85 MPH (5 to 140 KPH). The odometer shall display miles.

One (1) three function gauge with primary air pressure, secondary air pressure and fuel level. The scale on the air pressure gauges shall read from 0 to 140 pounds per square inch (PSI). The air pressure scales shall be non-linear to expand the scales in the region of normal operation. The scale on the fuel level gauge shall read from empty to full.

One (1) four function gauge with engine oil pressure, coolant temperature, transmission oil temperature and a voltmeter. The scale on the engine oil pressure gauge shall read from 0 to 140 pounds per square inch (PSI). The engine oil pressure scale shall be non-linear to expand the scale in the region of normal operation. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (F). The scale on the transmission oil temperature gauge shall read from 100 to 300 degrees Fahrenheit (F). The scale on the voltmeter shall read from 8 to 16 volts.

The instrument panel shall contain an Annunciator Module that contains the following indicator lights. All indicator lights shall contain LED lamps.

RED LAMPS

Stop Engine - indicates critical engine fault.

Park Brake - indicates park brake is set.

Low Fuel - indicates low fuel.

Cab Ajar - indicates tilt cab is not locked down. (1)

Volts - indicates high or low system voltage.

Low Oil Press - indicates low engine oil pressure.

High Coolant Temp - indicates excessive engine coolant temperature.

High Trans Temp - indicates excessive transmission oil temperature.

Low Air - indicates low air pressure in either system one or system two.

Low Coolant Level - indicates low engine coolant level. (1)

Low Oil Level - indicates low engine oil level. (1)

Air Filter - indicates excessive engine air intake restriction.

YELLOW LAMPS

Check Engine - indicates non-critical engine fault.
Check Trans - indicates transmission fault.
Wait to Start - indicates active engine air preheat cycle. (2)
ABS - indicates anti-lock brake system fault.
Water in Fuel - indicates presence of water in fuel filter. (1)
Engine Maint - indicates engine maintenance is required. (1)

GREEN LAMPS

Left and Right turn signal indicators.
Aux Brake Active - indicates secondary braking device is active. (1)
High Idle - indicates engine high idle is active. (1)
Low Trac - indicates low wheel traction for automatic traction control (ATC) equipped vehicles, also indicates mud/snow mode is active for ATC system. (1)

BLUE LAMP

High beam indicator.

AUDIBLE ALARMS

The instrumentation system shall provide a constant audible alarm for the following situations:

Low air pressure.
Low engine oil pressure.
High engine coolant temperature.
High transmission oil temperature.
Low coolant level. (1)
High or low system voltage
Critical engine fault (Stop Engine).

The instrumentation system will provide a three second alarm every three minutes for the following situations:

Low fuel.
Water in fuel.

Y___N___

POWER AND GROUND STUDS - BATTERY DIRECT

Power and grounding studs shall be provided and installed behind the electrical center cover with a breaker. The studs shall be #10 and capable of carrying up to a 40 amp battery direct load.

Y___N___

MARKER LAMPS

Five (5) I.C.C. cab marker lamps shall be installed on the roof of the cab. The lamps shall be teardrop shaped 3.00" high x 3.75" wide x 11.00" long.

Y__N__

DOOR WARNING - CHEVRON

Four (4) Chevron reflective signs shall be installed on the lowest portion of the inner door panels, one (1) on each door. A stripe of reflective tape shall be installed at the outer edge of each door.

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.

Y__N__

INTERIOR LIGHTING

The cab interior lighting shall consist of the following:

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

A red/white dome lamp with individual switches shall be located in the headliner, over the engine tunnel to serve as a tunnel surface light.

Y__N__

FLASHING DOOR AJAR LIGHT

A red flashing door ajar light shall be located in the headliner, centered in the cab. The light shall be 6.00" long x 2.50" wide x 1.75" high and labeled "Do Not Move Apparatus". The light shall be wired to indicate an open door on the cab when the parking brake is released.

Y__N__

ENGINE TUNNEL LIGHT

A Trucklite 4" diameter clear work light shall be provided and installed under the engine tunnel.

Y__N__

DASH AND HEADER TRIM XTREME DUTY

The cab interior dash trim shall consist of a two (2) piece vacuum formed ABS composite driver, a high impact aluminum officer panel and a high impact aluminum center assembly.

The center dash shall incorporate the integral rocker switch console and incorporate a latching electrical component access cover to allow complete access to the underside of the switch panel assembly and electrical harness and components.

The "A" pillar and center windshield post trim shall consist of a vacuum formed ABS composite driver, officer and center cover.

The header trim shall consist of a vacuum formed ABS composite driver, officer and a two (2) piece center HVAC cover. Mounted to the trim panels shall be two (2) 5.75" x 22.50" vinyl sunvisors.

Y___N___

INNER DOOR PANELS ZOLATONE PAINTED

The inner door panels shall be a Zolatone painted aluminum panel. A "Fireman Friendly" cast steel pull handle shall be included with the front door panel.

Y___N___

PAINT INNER DOOR PANELS

The inner door panel surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

Y___N___

ENGINE COVER

The fixed type engine cover shall be a maximum of 23.00" high x 41.50" wide. The cover shall be an integral part of the cab and made of 0.19" thick aluminum.

The interior cab side shall be covered with a multi-layer mat consisting of; .25" thick sound absorbing closed-cell foam, a heavy weight sound barrier, a .06" thick non-slip vinyl wear surface with a pebble grain finish, and held in place by a pressure sensitive adhesive and aluminum cornering trim. All exposed seams are sealed to reduce moisture contamination and debris build up.

The engine side of the cover shall be heavily insulated with multi-layer insulating materials, consisting of foam, a 1.0 lbs per sq ft sound barrier with a facing that resists heat transfer, and held in place by adhesive, aluminum stick pins and retention caps. All exposed insulation seams and edges are sealed to reduce moisture contamination and debris build up.

Y___N___

MOBILE DATA TERMINAL PROVISION W/TRAY & GLOVE COMPARTMENT

The cab interior dash trim officer panel shall consist of a high impact resistant aluminum module, which contains a glove compartment with a hinged non-locking door. The compartment size shall be 14.00" wide x 6.00" high x 6.00" deep.

A Mobile Data Terminal (MDT) provision shall be provided above the glove compartment. The MDT provision shall be recessed 3.00" below the surface of the dash. The surface area of the MDT provision shall be 16.00" wide x 14.00" deep.

A metal slide tray shall be installed allowing the tray to slide 11.25" toward the officer and lock into place. The surface area of the tray shall be 10.88" wide x 10.63" deep.

A 20 amp 12AWG clean power and ground circuit will be provided to the MDT area.

Y___N___

MAP BOX

A raised aluminum rack shall be provided that transverses the cab engine cover. The box shall be designed as configured by Layton Fire.

Y___N___

PAINT INTERIOR

The interior metal surfaces shall be painted with a Zolatone #20-72 silver gray texture finish.

Y___N___

INTERIOR TRIM COLOR AND FLOOR MAT GRAY/GRAY/GRAY

The cab interior soft vinyl trim surfaces shall be gray in color.

The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.

The cab interior floor mat shall be gray in color.

The interior cab floor, engine tunnel sides and front seat risers shall be covered with a multi-layer mat consisting of; .25" thick sound absorbing closed-cell foam, a heavy weight sound barrier, a .06" thick non-slip vinyl wear surface with a pebble grain finish, and held in place by a pressure sensitive adhesive and aluminum cornering trim. All exposed seams are sealed to reduce moisture contamination and debris build up.

Y___N___

HVAC SYSTEM

The cab shall be equipped with a ceiling mounted HVAC system. The system shall consist of an overhead heater/defroster/air-conditioning unit mounted above the engine tunnel in a central location with dash mounted controls.

The ceiling mounted HVAC system includes sixteen (16) adjustable louvers. Six (6) forward facing louvers for windshield, 45,000 Btu's of heat at 460 cfm for defrosting. Six (6) rearward facing louvers to direct air for crew comfort and four (4) for driver and officer comfort. In "Cabin Mode" the system is designed to produce 60,000 Btu's of heat and 32,000 Btu's of cooling. The system shall be capable of lowering the cab interior temperature from 100 degrees to 70 degrees within thirty minutes, with a relative humidity of sixty percent.

The air-conditioning compressor will be an engine driven Seltec TM-21 and utilize R-134A refrigerant.

The A/C lines will be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with E-Z clip fittings.

All heater system hoses, including auxiliary units shall be silicone with stainless steel constant torque clamps approved for use with silicone hose.

Y___N___

DELUXE INSULATION PACKAGE

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 1" thick multi layered insulation.

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 pendant 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. The cab pivots shall be 1.90" ball and be anchored to frame brackets with 1.25" diameter studs.

Two spring loaded hydraulic hold down hooks outboard of the frame shall be installed for holding the cab securely to the frame.

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.

Y___N___

MANUAL CAB LIFT PUMP

A manual cab lift pump module shall be attached to the rear surface of the driver side battery box.

Y___N___

EMS COMPARTMENT

An EMS compartment 17"W x 43"H x 23"D shall be installed in the left side of the cab behind the driver's seat. The compartment shall be accessible from outside the cab by a hinged, flush style door to match all other apparatus doors. The compartment shall be accessible from inside the cab by an aluminum framed lexan hinged door with two (2) non-locking latches. The interior door shall provide a clear opening of 15.00"W x 32.00"H and

begin 11.50" from the bottom. The compartment shall be able to store 12"W x 12.5"H x 21"L Plano style EMS boxes. This compartment shall contain one (1) vertical strip light.

Y___N___

EMS COMPARTMENT

An EMS compartment 17"W x 43"H x 23"D shall be installed in the right of the cab behind the officer's seat. The compartment shall be accessible from outside the cab by a hinged, flush style door to match all other apparatus doors. The compartment shall be accessible from inside the cab by an aluminum framed lexan hinged door with two (2) non-locking latches. The interior door shall provide a clear opening of 15.00"W x 32.00"H and begin 11.50" from the bottom. The compartment shall be able to store 12"W x 12.5"H x 21"L Plano style EMS boxes. This compartment shall contain one (1) vertical strip light.

Y___N___

WHEEL WELL LINERS

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. The two-piece liners shall consist of an inner liner 16" wide made of vacuum formed ABS composite and a outer fenderette 3.50" wide made of 14 gauge 304 polished stainless steel.

Y___N___

EXTERIOR CAB ASSIST HANDLES

Four (4) 18" knurled anti-slip one-piece exterior assist handles shall be installed, one (1) behind each cab door. The assist handle shall be made of 14 gauge 304 stainless steel and be 1.25" diameter to enable easy grabbing with the gloved hand.

Y___N___

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 entire cab must be disc ground to remove any surface oxidation or surface debris that may hinder the paint adhesion. After the surface is machine finished a high quality acid etching base primer shall be applied. 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 solids or epoxy surfacer 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 with 360 grit paper, seams sealed with SEM seal sealer 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 top coat shall not exceed five (5) mils.

The PPG FBCH lead free paint shall be warranted for ten (10) years against cracking, checking or peeling and loss of gloss caused by chalking or fading. Other types of paint such as Sikkens FLNA or Dupont Imron (5000 or 6000) may be requested but are subject to approval.

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

Y___N___

HAND SAND AND BUFF FINISH

The base coat clear coat finish shall be power sanded and machine finished to achieve a flat finish on all "A" visual surfaces.

Y___N___

OPERATORS MANUAL AND PARTS LIST

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

Y___N___

ENGINE AND TRANSMISSION OPERATION MANUAL

Two (2) engine operation and maintenance manual and two (2) transmission operation manual shall be included in the Spartan operator's manual.

Y___N___

FIRE EXTINGUISHER

A 2.5 pound BC D.O.T approved fire extinguisher shall be shipped loose with the cab.

Y___N___

BACK UP ALARM

An electronic backup alarm shall be furnished and installed. It shall be 97 decibels and actuate automatically when transmission gear selector is placed in reverse.

Y___N___

BUMPER EXTENSION

There shall be a front bumper extension provided with the chassis from the chassis manufacturer.

Y___N___

Front Hosewell Cover provided with the Chassis hosewell. The hosewell cover shall have a positive latch for securing lid.

CAB TILT CONTROL

Y___N___

There shall be a remote cab tilt control located behind the pump access panel on the right side of the apparatus.

Y___N___

FUEL FILL DOOR

There shall be an aluminum fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the area that best suits efficient fuel filling with the space appropriated. The fuel fill assembly will have a polished aluminum frame with a brushed aluminum door. There shall be a drain in the fuel fill assembly to allow over flow to drain on the back side of the apparatus body. The fuel fill cap to be removable. There shall be a label near the fuel fill door labeled "DIESEL FUEL ONLY". The fuel fill pipe shall have a 3/8" inside diameter vent line installed from the top of the fuel tank to the fill tube.

Y___N___

ENGINE COMPARTMENT LIGHTS

The chassis manufacturer shall provide the engine compartment lights specified previously.

Y___N___

DRIVE LINE MODIFICATION

The chassis drive line shall be modified from it's OEM Status to accommodate any changes required by the OEM for wheelbase, pump installation, or otherwise.

Y___N___

BATTERY & AIR CHARGERS

A battery charger and air pressure leakage compensator shall be furnished and installed. The battery charger shall have a 40 amp output to the batteries. There shall be a bar graph display, to indicate battery condition, mounted near the shoreline.

The air compressor shall be 12 volts and also operate off of the charger, maintaining brake pressure to a minimum 75 psi. The components shall be manufactured by Kussmaul Electronics and be model Pump Plus 1200.

Y___N___

There shall be a Kussmaul "Super Auto-Eject" 110 volt, 20 amp shoreline receptacle furnished and installed. When the ignition switch is activated, the electrical current shall be interrupted before the plug is automatically eject to prevent arcing. The plug for the receptacle shall be shipped loose to be installed on the shoreline cord.

The shoreline connection(s) shall be installed under the driver's door area at the lower step level. The connection(s) shall be placed forward of the immediate stepping area if space allows.

Y___N___

SIREN

One (1) Whelen electronic siren, model # 295HFS1 shall be furnished and installed. It shall be 100 watts and feature wail, yelp, phaser, air horn and manual wail. The microphone shall have noise canceling circuitry and Public Address override. The siren and hard wired microphone shall be installed with-in reach of the driver and officer unless otherwise directed by the fire department.

MECHANICAL SIREN

There shall be one (1) motor driven, streamlined, rotary siren(s) with chrome plated grill and housing pedestal furnished and installed. The siren(s) shall be properly wired with heavy copper cable for minimum voltage drop. The siren(s) shall be manufactured by Federal Signal and be model # Q2B.

Y___N___

- A siren brake activated by a rocker switch located in the control panel shall be installed for the mechanical siren on the apparatus .

Y___N___

The siren shall be located on the front bumper on the left side. The siren shall be mounted in such a position as to not interfere with the normal cab tilt mechanism and inhibit full cab tilt.

Y___N___

The siren shall be actuated by either foot switch, one mounted on the driver's side and one mounted on the passenger's side of the chassis cab.

Y___N___

AIR HORNS

The air horns shall be provided with the chassis.

Y___N___

PRESSURE PROTECTION VALVE

There shall be a pressure protection valve to prevent the use of air horns or other air operated accessories when the system air pressure drops below 85 psi.

Y___N___

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided. They shall be visible from each seating position.

Y___N___

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

- Engine oil
- Engine Coolant

- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (if applicable)
- Tire Pressures

Y___N___

VEHICLE INFORMATION LABEL

There shall be a travel clearance warning label located in the chassis cab. The travel clearance warning label shall be located in easy view of the driver. The travel clearance warning label to include the following information:

1. Overall travel clearance height in feet and inches.
2. Overall travel clearance length in feet and inches.
3. Overall travel clearance width in feet and inches.

Y___N___

MUD FLAPS

Heavy-duty rubber mud flaps shall be provided behind the rear wheels. The mud flaps shall be black rubber type and be bolted in place.

Y___N___

MIDSHIP PUMP

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

Y___N___

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

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

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3 1/2" openings for ultimate flexibility in providing various discharge outlets for maximum efficiency, and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

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

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

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

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

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

Y___N___

MASTER DRAIN VALVE

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

Y___N___

PUMP SEALS

The pump shall be equipped with self adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manor that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

Y___N___

PUMP SHIFT

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

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

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

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

Y___N___

PRIMING SYSTEM

The priming system shall include an electrically driven rotary vane priming pump rigidly attached to the pump transmission. The priming pump shall be self lubricating and shall not require an external oil reservoir. The pump, when dry, shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds through 20 feet of suction hose through the steamers. Priming pump shall be built by the manufacturer of the fire pump.

Y___N___

PRIMER CONTROL

There shall be a push button to simultaneously actuate the primer control valve and the primer motor.

Y___N___

STEAMER INLETS

There shall be two (2) 6" inlets furnished, one on either side of the pump. The inlets shall not protrude less than 2" away from the side panels and shall each have 6" NST threads and a removable strainer

Y___N___

6" CHROME PLATED BRONZE CAPS

There shall be two (2) 6" long handled chrome plated caps furnished. The caps shall be National Standard Thread.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, waterways, and manifolds shall be fabricated with stainless steel pipe, brass or high pressure flexible piping with stainless steel couplings - NO EXCEPTIONS. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valving shall be non-painted. All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.5" through 4". Sizes 3/4", 1" and 5" are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1" through 5" for maximum performance in tight bend applications. The material has a temperature rating of -40° F to +210° F.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male 3/4" and 1" couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I. D. is utilized to assure maximum holding power when fastening couplings to hose.

Y__N__

2 1/2" RIGHT SIDE SUCTIONS

There shall be one (1) 2 1/2" gated suction inlet(s) installed on the apparatus. Each intake valve shall be equipped with a 3/4" bleeder.

Y__N__

Each suction shall be plumbed with a 2 1/2" Akron Brass 8000 series swing-out valve with a stainless steel ball.

Y__N__

Each suction shall be controlled with a lever directly attached to the valve.

Y__N__

Each side suction shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

Y__N__

The suction shall terminate with a heavily chrome plated brass 2 1/2" NST swivel female adapter with screen. In addition, a 2 1/2" NST male plug shall be included secured by a chain or cable to the inlet termination location.

2 1/2" LEFT SIDE SUCTIONS

Y__N__

There shall be one (1) 2 1/2" gated suction inlet installed on the apparatus. Each intake valve shall be equipped with a 3/4" bleeder.

Y__N__

Each suction shall be plumbed with a 2 1/2" Akron Brass 8000 series swing-out valve with a stainless steel ball.

Y__N__

Each suction shall be controlled with a lever directly attached to the valve.

Y__N__

Each side suction shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

Y__N__

The suction shall terminate with a heavily chrome plated brass 2 1/2" NST swivel female adapter with screen. In addition, a 2 1/2" NST male plug shall be included secured by a chain or cable to the inlet termination location.

Y__N__

FRONT BUMPER DISCHARGE

One (1) front bumper discharge shall be provided in the location specified.

Y__N__

Each discharge shall utilize an Akron Brass 2" 8000 series swing-out valve with a stainless steel ball.

Y__N__

Each discharge shall be controlled from the side operator's panel.

Y__N__

Each discharge shall be plumbed with 2" Class 1 high pressure vapor hose and stainless steel couplings and/or stainless steel piping.

Y__N__

There shall be an air "blowout" system furnished for front bumper discharge drainage. The air blow out system shall be connected to the chassis air brake system. There shall be a check valve furnished between the chassis system and the front bumper discharge blow out system. There shall be a manual control valve furnished on the pump operators panel for the air blow out system.

Y__N__

The discharge shall terminate with a polished stainless steel 1 1/2" NST chicksan swivel. This discharge is intended to be pre-connected to hose, so no cap shall be provided.

The front bumper discharge shall be mounted on top of the gravel shield of the front bumper extension. The discharge shall be placed to the right of the hosewell. The discharge shall terminate with a chicksan swivel to accommodate deployment of hose in different directions. Stainless steel rollers shall be installed on each side of the hose well to protect the cab and siren from damage when the hose is moved.

Y___N___

A Class 1 2 1/2" lighted gauge shall be supplied for discharge pressure reading 0-400 psi. The gauge shall utilize red LED lights and be manufactured by Class 1.

Y___N___

RIGHT SIDE DISCHARGES

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

Y___N___

Each discharge shall utilize an Akron Brass 2 1/2" 8000 series swing-out valve with a stainless steel ball.

Y___N___

Each discharge shall be controlled from the side operator's panel.

Y___N___

Each discharge shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

Y___N___

The discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

Y___N___

A Class 1 2 1/2" lighted gauge shall be supplied for discharge pressure reading 0-400 psi. The gauge shall utilize red LED lights and be manufactured by Class 1.

LEFT SIDE DISCHARGES

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

Y___N___

Each discharge shall utilize an Akron Brass 2 1/2" 8000 series swing-out valve with a stainless steel ball.

Y___N___

Each discharge shall be controlled with a 'swing-type' lever directly attached to the valve. The lever shall operate just over 90 degrees of travel to provide full open / full closed positioning of the valve.

Y__N__

Each discharge shall be plumbed with 2 1/2" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

Y__N__

The discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

Y__N__

A Class 1 2 1/2" lighted gauge shall be supplied for discharge pressure reading 0-400 psi. The gauge shall utilize red LED lights and be manufactured by Class 1.

Y__N__

MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus in the pump module area.

Y__N__

Each 4" discharge valve shall be controlled from the operator's panel with an Akron hand crank control. There shall be a mechanically driven dial type indicator to show each valve position.

Y__N__

Each discharge shall be plumbed with 4" piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

Y__N__

The discharge shall terminate with a heavily chrome plated brass 4" NPT to NST adapter and a 4" NST female swivel by 4 1/2" NST cast aluminum 30 degree elbow. In addition, a 4 1/2" cap shall be included secured by a chain or cable to the outlet termination location.

Y__N__

A Class 1 2 1/2" lighted gauge shall be supplied for discharge pressure reading 0-400 psi. The gauge shall utilize red LED lights and be manufactured by Class 1.

Y__N__

RIGHT REAR DISCHARGES

There shall be one (1) gated discharge installed in the rear of the apparatus, on the right side of the truck.

Y__N__

Each discharge shall utilize an Akron Brass 2 1/2" 8000 series swing-out valve with a stainless steel ball.

Y__N__

Each discharge shall be controlled from the side operator's panel.

Y__N__

Each discharge shall be plumbed with 2 1/2" Class 1 high pressure vapor hose and stainless steel couplings and/or stainless steel piping. The plumbing shall be drained with a quarter-turn drain system. The drain control shall be located on the lower sill on either side of the pump house.

Y__N__

The discharge shall terminate with a 2 1/2" NST adapter and a 2 1/2" NST female by male swivel 45 degree elbow. In addition, a 2 1/2" NST cap shall be included, secured by a chain or cable to the outlet termination location.

Y__N__

A Class 1 2 1/2" lighted gauge shall be supplied for discharge pressure reading 0-400 psi. The gauge shall utilize red LED lights and be manufactured by Class 1.

Y__N__

DOUBLE STACK CROSSLAYS

The crosslay hose beds shall be located in the upper portion of the pump compartment. The crosslay shall be constructed with a fifteen (15) inch approximate depth for laying a double stack of each hose size specified below. The crosslay area shall be located at the front of side control module apparatus and at the rear of top control module apparatus. The crosslay area shall span the entire width of the pump module apparatus. Removable slotted aluminum flooring shall be provided for hose area drainage. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the crosslay opening. Chicksan swivels shall be installed just below the floor of each crosslay bed just high enough for hose couplings to be accessed and tightened on to chicksans. Chicksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

Y__N__

Two (2) crosslays shall be provided for up to 200 feet of 1 3/4" hose.

Y__N__

Each discharge shall utilize an Akron Brass 2" 8000 series swing-out valve with a stainless steel ball.

Y__N__

Each discharge shall be controlled from the side operator's panel.

Y__N__

Each discharge shall be plumbed with 2" Class 1 high pressure vapor hose and stainless steel couplings and/or stainless steel piping. The plumbing shall be drained with an auto-drain located at the lowest point of the waterway system.

Y__N__

The discharge shall terminate with a brass 1 1/2" NST chicksan swivel. This discharge is intended to be pre-connected to hose, so no cap shall be provided.

A Class 1 2 1/2" lighted gauge shall be supplied for discharge pressure reading 0-400 psi. The gauge shall utilize red LED lights and be manufactured by Class 1.

Y__N__

CROSSLAY TRIM

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

Y__N__

CROSSLAY COVER

The crosslay hose bed area shall have a vinyl cover installed on the top and sides of the crosslay area. The cover shall be held in place by velcro across the top and sides and the bottom shall be weighted. A nylon strap shall be attached to the bottom for fast access with a gloved hand.

Y__N__

The crosslay hose bed cover shall be red.

Y__N__

CROSSLAY HOSE BED LIGHT

There shall be one flood light furnished and installed on the pump compartment to illuminate the crosslay hose bed. It shall be 6" in diameter and be 50 watts. The light shall be manufactured by Unity.

Y__N__

DELUGE PLUMBING

There shall be one (1) deluge waterway(s) installed on the apparatus.

Y__N__

Each gated discharge outlet furnished shall utilize an Akron Brass 3" 8000 series slo-cloz swing-out valve with a stainless steel ball.

Y__N__

Each discharge shall be controlled from the side operator's panel.

Y__N__

The deluge shall be plumbed with 3" piping that terminates 3" above the top of the pump compartment unless otherwise specified or required by a specific deck gun selection as noted. The plumbing shall be drained with an auto-drain located at the lowest point of the waterway system if required.

Y__N__

Y__N__

Y__N__

There will be a Task Force Tips 18" Extenda-Gun installed on the deluge pipe. The Extenda-Gun will be wired to the cab "Door Open" indicator light that will notify occupants the gun is not properly stowed.

Y___N___

A Class 1 2 1/2" lighted gauge shall be supplied for discharge pressure reading 0-400 psi. The gauge shall utilize red LED lights and be manufactured by Class 1.

Y___N___

The deluge pipe shall be located up through the pump compartment, centered from left to right.

Y___N___

There shall be one Task Force Tips Crossfire SAFE-TAK monitor complete, including ground base with foldaway legs, pipe and tips.

Y___N___

The ground base shall have (2) 2.5" clappered inlets.

Y___N___

There shall be a master stream nozzle furnished. It shall be a Task Force Tips model M-R, 350-1000 GPM.

Y___N___

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in NFPA Pamphlet 1901, latest revision and shall be tested to those standards when the pump is being certified. One (1) non-collapsible flexible hose(s) and valve(s) shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Schedule 10 stainless steel or schedule 40 Poly-Vinyl Chloride piping may be used to complete the connection from the tank to pump valve to the water tank.

Y___N___

One (1) Akron Brass 3" swing-out valve(s) with a stainless steel ball shall be installed.

Y___N___

Each valve shall be controlled from the side operator's panel.

Y___N___

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standards, which shall be of bronze construction. The check valve shall be mounted as an integral part of the pump suction extension.

Y___N___

TANK FILL LINE

One (1) 1 1/2" tank fill/recirculating line shall be installed from the pump directly to the booster tank.

Y___N___

One (1) Akron Brass 1 1/2" swing-out valve(s) shall be installed.

Y___N___

Each valve shall be controlled from the side operator's panel.

Y___N___

PUMP COMPARTMENT

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

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

Y___N___

TORSION PUMP MODULE MOUNTING SYSTEM

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

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing. There shall be a 1/4" thick UHMW polymer bearing washer between the body structure and each torsion mount. This washer shall provide dissimilar metals contact between the body structure and each mount. The UHMW bearing washer shall also act as a wear pad due to its low wear material properties.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be

bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. NO EXCEPTIONS.

Y___N___

HARD SUCTION

Two (2) ten foot lengths of NFPA compliant hard suction shall be provided and mounted on the apparatus. Each length shall be mounted above the body compartments, one on each side. A suction strainer and rope shall also be provided.

Y___N___

TRANSVERSE COMPARTMENT

The front of the pump compartment shall have a transverse compartment. The width of the compartment will be the same as the pump compartment. The compartment shall have a clear door opening of 19" with hinged doors. There shall be a shelf in the compartment and lighting above and below the shelf.

Y___N___

SMART DISPLAY OPERATORS PANEL

The pump operator's panel shall be located on the left upper side of the apparatus pump compartment and shall be angled from the top for better visibility and reduced glare. The panel shall be split into an upper and lower section. The left upper panel shall house all gauges and controls and be hinged to allow easy access to those components. The door shall have a stainless steel hinge, a dual point chrome push button latch and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The tubular structure shall be overlaid underneath the removable panels on each side of the compartment shall be made of brushed stainless steel.

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

Y___N___

Adequate illumination shall be provided for all gauges and controls by means of a shielded light assembly with three (3) Weldon 2030 lights on the left side or an adequate amount of lights space permitting and one directional light on the right side panel.

There shall be a switch located on the pump panel to turn two (2) of the pump panel lights and the directional light on or off. This switch shall also activate any area step lighting. The third light on the pump panel shall illuminate when the pump is engaged and it is "OK TO PUMP".

Y___N___

PUMP COMPARTMENT SERVICE ACCESS

The front portion of the pump compartment structure (directly behind the chassis cab) shall not be overlaid to provide an opening for access to the midship fire pump.

Y__N__

The structural framework of the pump compartment shall be self-supportive and independent of the apparatus body. The pump module shall be approximately 74" in width as measured laterally across the apparatus and approximately 70" in height. The width of the apparatus as measured longitudinally (measured within the wheelbase dimension of the apparatus) shall be specified in the remainder of the specifications.

Y__N__

The width of the pump compartment (front to back) shall be 44".

Y__N__

APPARATUS LABELING

The apparatus shall be descriptively tagged with color coded metal labels. The labels shall be applied near Apparatus features that require a user function description. Wherever necessary, the labels shall be color coded to differentiate controls and their respective functions to simplify and clarify complex configurations.

Y__N__

BRUSHED STAINLESS STEEL SIDE PANELS

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and each shall be made of brushed stainless steel.

There shall be two (2) side pump panels on each side of the pump compartment, one upper and one lower. The left, upper side panel shall be the pump operator's panel. The operator's panel shall be hinged across the bottom and drop down with a cable hold open device, closing against a door seal. The right side upper shall be vertically hinged at the rear closing against a door seal and shall open first. The left side lower panel shall be attached with mechanical fasteners and be easily removable for pump access. The right side lower vertically hinged at the rear closing against a door seal. All panels shall be made from heavy duty brushed stainless steel, capable of withstanding the effects of extreme weather and temperature.

Y__N__

RUNNING BOARDS

The running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails. The running boards shall be independent of the apparatus body and shall be tied only to the pump compartment structure, thereby eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive shall be applied to the top surface of the running board framework to provide a suitable stepping surface.

Y__N__

GRIP-SURFACE INSERT

The left side running board shall have an aluminum "Diamondback" grip surface insert installed. The grip surface area shall be as large as possible by extending to the perimeter of the inside of the structural running board framework. This ventilated grip material shall allow debris and water to pass through to eliminate build-up, thereby retaining a suitable stepping surface.

Y___N___

GRIP-SURFACE INSERT

The right side running board shall be easily removable and have an aluminum "Diamondback" grip surface insert installed. The grip surface area shall be as large as possible by extending to the perimeter of the inside of the structural running board framework. This ventilated grip material shall allow debris and water to pass through to eliminate buildup, thereby retaining a suitable stepping surface.

Y___N___

TESTING PORTS

There shall be a pressure and vacuum test gauge adapter with chrome plated plugs furnished and installed on the pump operators panel.

Y___N___

PRESSURE GOVERNOR, ENGINE INFORMATION AND MASTER GAUGE SYSTEM

A pressure governor, engine information display and master gauge intake and pressure display system shall be provided.

The pressure governor control system shall have two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between pressure and RPM modes. When the pump engaged interlock signal is recognized an OK TO PUMP indicator will light to indicate throttle ready and the governor shall be in pressure mode with the engine RPM set to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall be waterproof and have lights to indicate PSI mode, RPM mode, and OK TO PUMP.

A means of monitoring chassis engine information shall be furnished and installed on the pump panel of the apparatus. The information system shall provide the pump operator with:

- Engine RPM
- Oil Pressure
- Engine Temperature
- Diesel Fuel level
- Electrical System Voltage
- This unit shall also contain all required engine audible alarms including the low voltage alarm.

A means of monitoring master intake and master discharge pressure shall be furnished and installed on the pump panel of the apparatus. They shall be capable of monitoring the

master intake vacuum or pressure from -30 to 400 psi and the master discharge pressure from -30 to 400 psi.

Y___N___

SUCTION RELIEF VALVE

A suction relief valve with a range of pressure adjustment from 75 to 250 PSI shall be furnished, and installed inside pump compartment piped to the suction side of the pump. The valve shall be preset at 125 PSI suction inlet pressure. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the atmosphere via the unloader pipe and shall dump on the opposite side of the pump operator. The valve shall come with 2 1/2" male NPT threads that can be capped if the relief valve fails in the open position. For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

Y___N___

Pump Panel Harness for PSG

Y___N___

HEAT EXCHANGER

There shall be a supplementary heat exchanger cooling system furnished and installed for use of water from the discharge side of the fire pump through the engine compartment, without intermixing, for absorption of excess heat. The heat exchanger shall be adequate in size to maintain the temperature of the coolant in the pump drive engine not in excess of the engine manufacturer's temperature rating under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing. A manual shut-off valve shall be supplied at the pump operator's position.

Y___N___

EXPANDED PLATFORM

The area above the smart display operator's panel shall incorporate a larger platform area with more work space for deck gun and other operations.

Y___N___

PUMP COMPARTMENT TOP OVERLAY

The top of the pump compartment shall be an approved stepping surface constructed of 1/8" embossed tread plate approved by the latest NFPA standards for abrasiveness.

Y___N___

STAINLESS STEEL BODY DESCRIPTION

The complete apparatus body shall be constructed of a combination of structural tubing and formed sheet metal. These components shall be welded together utilizing an A.W.S.

Certified welding procedure. This process shall ensure the quality of structural stability of the apparatus body.

304 grade low carbon stainless steel tubing shall be used in the construction of the structural framework. 2 1/2" x 2 1/2" square and 2 1/2" x 1" rectangular tubing shall be used exclusively throughout the construction of the body module. The tubular construction shall form a framework which provides the structural integrity for the entire body module.

Sheet metal panels complete the structure by forming the compartmentation specified. Wherever this sheet metal serves as a load-bearing component, it shall be reinforced with structural tubular supports to ensure sound construction for lasting service. Body compartment floors shall be 'sweep-out' in design to aid in regular cleaning maintenance of the apparatus. In most areas, 14 gauge 304 sheeting is used, but may be substituted by 12 or 10 gauge sheet if necessary in extreme load bearing applications.

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by a sufficient corrosion and electrolysis inhibitor. Bodies which utilize "L" style brackets bolted to the chassis frame shall not be acceptable. Bodies which utilize a design that requires the compartments to be bolted to a separate sub-frame shall not be acceptable.

Y___N___

The interior of the compartments shall have a common wall construction. This will maximize the useable space by utilizing the exterior body overlays as interior compartment enclosures.

Y___N___

SIDE RUB RAILS

The bottom edge of the compartments shall be trimmed with rub rails to absorb minor damage while protecting the body. The rub rails shall be fabricated of brightly anodized aluminum channel. The rub rails shall be bolted in place with stainless steel bolts and locking nuts, and shall be spaced away from the body with 1/2" nylon spacers to help prevent the collection of water and debris. Each rub rail section shall be easily removable and replaced should it become damaged.

Y___N___

REAR RUB RAILS

The rearward edge of the rear step shall be trimmed with rub rails to absorb minor damage while protecting the body. The rub rails shall be fabricated of brightly anodized aluminum channel. The rub rails shall be bolted in place with stainless steel bolts and locking nuts, and shall be spaced away from the body with 1/2" nylon spacers to help prevent the collection of water and debris. Each rub rail section shall be easily removable and replaced should it become damaged.

Y___N___

REAR TAILBOARD AND BEAVER TAILCOMPARTMENTS

The rear tailboard shall be fabricated of the same structural materials as used in the apparatus body. The tailboard shall be an independent assembly welded to the rear

structural framing to provide body protection and a solid rear stepping platform. The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

The rear of the apparatus body shall have a beaver tails compartment on each side. The beaver tail compartments shall be constructed of the same materials as the apparatus body and extend from the top of the body compartments down to the rear tailboard. The compartments shall have box pan design doors installed. The doors shall be a minimum of 2" thick with a return flange on the interior of the door to provide a mounting surface for the attachment of a brushed aluminum door liner and shall be horizontally hinged. The door handle shall be polished stainless steel D-ring style that are spring loaded and bidirectional. The hinged door shall be a "flush" style to provide a flat appearance. The body shall form a 2" deep frame on all four sides to receive the door, preventing any door overlap. A clip on rubber gasket shall be mounted on the door frame, providing a tight seal to prevent moisture and debris from entering the compartment.

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

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

Y___N___

The rear tailboard shall be approximately thirteen and one-half (13.5) inches deep and shall incorporate a ventilated "Diamondback" material stepping surface bolted in place which spans the width of the apparatus. The extruded stepping surface shall be completely enclosed by the supporting structural framework to minimize damage. The ventilated "Diamondback" material shall be capable of being easily replaced if necessary, using only hand tools. The framework shall be covered with an adhesive tape providing an aggressive traction surface. Use of any aluminum diamond plate material on these areas shall not be acceptable.

Y___N___

FOLDING STEPS

Each surface of the folding step shall have grip material with a minimum of 42 sq. inches in size. Each step shall be capable of sustaining a 500 lb. static load. The steps shall be manufactured by Austin/Thomas Hardware model #PHS100.

The following steps shall be installed:

Y___N___

Three (3) folding steps shall be installed on the left forward wall of the front compartment. These steps shall be utilized to access the water tank fill tower of the apparatus. The steps shall also be utilized to gain access to the top of the pump compartment structure and any equipment located in the immediate vicinity.

Y___N___

One (1) light shall be mounted to illuminate stepping areas provided. Each light shall be a Weldon chrome shielded 12 candle power light. Each light shall be directed towards and positioned above the stepping surfaces.

Y__N__

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be mounted in a best fit location above the step(s) to assist in climbing the steps according to NFPA 1901. There shall be a 2" minimum clearance between the bracket and the body.

Y__N__

Two (2) folding steps shall be installed on the left rear vertical face of the body.

Y__N__

One (1) light shall be mounted to illuminate stepping areas provided. Each light shall be a Weldon chrome shielded 12 candle power light. Each light shall be directed towards and positioned above the stepping surfaces.

Y__N__

One (1) 10" long x 1 1/4" diameter handrail constructed of knurled #3 polished stainless steel tubing shall be mounted in a best fit location above the step(s) to assist in climbing the steps according to NFPA 1901. There shall be a 2" minimum clearance between the bracket and the body.

Y__N__

PAINT SPECIFICATIONS

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

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

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

The paint applied to the apparatus shall be PPG Industries Delfleet® brand, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

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

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanate in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cellosolves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according

to manufacturers recommendations for handling and proper protective safety equipment, and for its intended use.

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

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

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

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

Military Standard: MIL-C 83486B Coating, Urethane, aliphatic Isocyanate, for Aerospace applications.

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

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

BODY PAINT COLOR

The apparatus body shall be painted to match existing Layton Fire department apparatus color schemes.

Y__N__

NATURAL COMPARTMENT FINISH

To prevent scratching of the paint finish, and to provide the maximum reflectivity for the compartment lighting, the interior of the compartments shall have a natural stainless steel finish. Absolutely no coatings will be allowed on the compartment interiors.

Y__N__

GENERAL BODY DETAILS

All compartmentation shall be constructed in a sweep out design to be water and dust proof, manufactured to the maximum possible storage capacity.

Y__N__

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. The Manufacturer may be requested to supply evidence of fastener coating and results of salt spray testing when dissimilar metals are used. Any bolt extending into a compartment or

into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

WHEEL WELLS

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

Y__N__

WHEEL WELL MODULES

The body wheel well area on each side of the body shall be fabricated of smooth stainless steel and finish painted. They shall incorporate smart storage compartments utilize the most space possible.

Y__N__

WHEEL CHOCK COMPARTMENT

There shall be a compartment located in the wheel well to hold a set of Zico folding wheel chocks.

Y__N__

The compartment shall be located in front of the axle on the left side.

Y__N__

SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" diameter x 24.50" long SCBA bottles.

Y__N__

The compartment shall be located in front of the axle on the right side.

Y__N__

SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" diameter x 24.50" long SCBA bottles.

Y__N__

The compartment shall be located behind the axle on the right side.

Y__N__

SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" diameter x 24.50" long SCBA bottles.

The compartment shall be located behind the axle on the left side.

Y__N__

DOOR OPEN INDICATOR

Each smart storage compartment door shall have a magnetic style switch. If the door is not properly closed, it shall activate the "Door Open" light in the cab.

Y__N__

TORSION BODY MOUNTING SYSTEM

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

Y__N__

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing. There shall be a 1/4" thick UHMW polymer bearing washer between the body structure and each torsion mount. This washer shall provide dissimilar metals contact between the body structure and each mount. The UHMW bearing washer shall also act as a wear pad due to its low wear material properties.

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

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. NO EXCEPTIONS.

Y__N__

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99" excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. For example:

- All upper compartments (if apparatus is so equipped) shall vent into the lower compartments.
- The lower compartments shall be vented into the wheel well area by a high grade foam filter frame assembly.
- The filter locations shall be determined by what's best-fit for each body configuration.
- The venting filter shall be easily removable for cleaning and shall be treated to prevent mildew.

Y__N__

COMPARTMENT UNISTRUT

Vertically mounted unistrut shall be installed in ALL compartments of the apparatus body to accommodate mounting shelves, trays, and other miscellaneous equipment items.

Y__N__

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1": There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 33.5" wide by 69" high with a lower depth of 25.5" and an upper depth of 12.5". The door opening shall measure approximately 28" wide by 60" high. The compartment will have approximately 25 cubic feet of space.

The door shall have Pac Trac mounting board installed on the inside surface of the door for tool installation.

The door shall have a tray mounted on the bottom, inside to hold sledge hammer heads, axe heads, etc. when mounted to the Pac Trac.

A fixed shelf shall be installed at the high/low break. The shelf will be 2" from the door when closed to allow for tool handle clearance.

Compartment "L2": There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 40" high with a depth of 12.5". The door opening shall measure approximately 59" wide by 31" high. The compartment will have approximately 15.5 cubic feet of space.

The back wall of this compartment shall have Pac Trac installed on the entire surface.

Compartment "L3": There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 49" wide by 69" high with an upper depth of 12.5" and

the lower portion being 25.5" in depth. The door opening shall measure approximately 43.5" wide by 60" high. The compartment will have approximately 42.5 cubic feet of space.

Compartment "B1": There shall be one (1) compartment located at the rear of the apparatus, directly below the hose bed access area. The approximate dimensions of this compartment shall be 33" high with a depth of 33". The compartment will have approximately 28.5 cubic feet of space. The rear center compartment of the apparatus shall be full height, as high as possible as determined by water tank height. The compartment shall have hinged, tread plate doors installed.

Compartment "R1": There shall be one (1) full height compartment ahead of the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 33.5" wide by 69" high with a lower depth of 25.5" and an upper depth of 12.5". The door opening shall measure approximately 28" wide by 62" high. The compartment will have approximately 25 cubic feet of space.

Compartment "R2": There shall be one (1) compartment located directly above the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 38" wide by 40" high with a depth of 12.5". The door opening shall measure approximately 32.5" wide by 31" high. The compartment will have approximately 9.5 cubic feet of space.

Compartment "R3": There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 49" wide by 69" high with an upper depth of 12.5" and the lower portion being 25.5" in depth. The door opening shall measure approximately 4.55" wide by 62" high. The compartment will have approximately 42.5 cubic feet of space.

Y___N___

DOOR CONSTRUCTION

All doors shall be a minimum of 2" thick with a return flange on the interior of the door to provide a mounting surface for the attachment of a brushed door liner. To prevent corrosion, the liners shall not be attached with metallic fasteners. Each door will have a weep hole to prevent interior moisture build up.

All door hinges shall be polished 14 gauge 304 stainless steel with a 1/4" diameter stainless steel pin. The hinges shall be mounted to provide easy door adjustment in the future without removing the door liner. The vertically hinged doors shall each have a stainless steel spring loaded door holder. The horizontally top hinged doors shall have a gas charged shock to hold the door in the up position.

Door handles shall be polished stainless steel D-ring style that are spring loaded and bidirectional. They shall be mounted on the doors of compartments with a single door or on the primary door of a compartment with vertical double doors. The latches shall attach to the door assembly without any fasteners penetrating the door skin material, with a rubber gasket provided between the D-ring handle and the door skin. The door latch assembly must be completely enclosed by the door assembly and inner door pan, to prevent damage from shifting equipment carried in the compartment.

The door latches to open the secondary door of a compartment with vertical double doors shall be "lever" style, located on the backside of the door. Once the primary door is opened, the handle shall be easily visible. Full height secondary doors will have the latch at the bottom of the door with all others door heights having the latch at the top of the door.

All hinged doors shall be a "flush" style to provide a flat appearance of the body side. The body shall form a 2" deep frame on all four sides to receive the door, preventing any door overlap. A clip on rubber gasket shall be mounted on the door frame, providing a tight seal to prevent moisture and debris from entering the compartment.

Y__N__

All horizontal and vertical side compartment doors shall be fabricated of 5052 aluminum.

Y__N__

DOOR OPEN INDICATOR

Each flush door compartment shall have a magnetic style reed indicator switch. Each switch shall be hermetically sealed rated to 10,000,000 cycles. The reed shall be potted in the contact housing with polyurethane and the housings shall be molded fire retardant ABS plastic. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.

Y__N__

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

Y__N__

HOSE STORAGE

A hose bed shall be provided with a minimum of thirty (30) cubic feet of storage space. The hose bed shall have a slotted 1/4" aluminum flooring installed to allow drainage through the tank cavity to the ground below. The aluminum flooring shall be manufactured in discrete sections to allow for easy removal and outstanding stability. The area shall be free of sharp edges to protect the hose when loaded or distributed.

Y__N__

The walls of the hose bed shall be 80" tall, measured from the bottom edge of the compartments to the top flange.

Y__N__

VINYL COATED NYLON HOSE BED COVER

There shall be a hose bed cover furnished that is made of vinyl coated nylon. The cover shall be held in place by extruded aluminum channel on the front and an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover on the sides. Hooks shall be provided on the sides to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum. The cover shall have a flap that extends down over the rear of the hose bed which shall be described below.

Y__N__

The cover shall have a flap that extends down over the rear of the hose bed which shall be fastened by an elastic shock cord sewn into the tarp with brass grommets where the shock

cord passes through the hose bed cover. Hooks shall be provided on the lower corners to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

Y__N__

The hose bed cover shall be red.

Y__N__

The hose bed shall accommodate the following minimum hose loads:

800 ft. or Snaptite 5" LDH

800 ft. 2 1/2" jacketed hose

Y__N__

HOSE BED DIVIDERS

There shall be two (2) dividers installed in the hose bed. The divider(s) shall be fabricated of 1/4" thick aluminum plate with a double sided reinforcement where it is attached to the adjustable slide rails. The rear of the divider(s) shall have a radius to provide a smooth corner. Hose payout shall be unobstructed by the divider(s).

Y__N__

DUNNAGE AREA

A vertical bulkhead shall be installed at the front of the hose bed area, just behind the water tank fill tower, forming a storage area that is separated from the hose bed. The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

Y__N__

FENDERETTES

Two (2) polished stainless steel fenderettes shall be provided on body rear wheel well openings, one (1) each side. A rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

Y__N__

TANK CAPACITY

The tank shall be 750 gallons in capacity and have an 'L' configuration with the majority of the water being located at the front of the body creating a low hose bed.

Y__N__

TANK LEVEL GAUGE

A Fire Research Tank Vision LED water tank level indicator shall be installed on the pump operator instrument panel. The gauge shall provide the pump operator with an accurate

reading of the water tank level. A beveled lens shall be incorporated into the indicator that protrudes from the module to allow viewing of the water tank level by personnel when not standing directly in front of the display.

The tank level gauge shall utilize a pressure transducer mounted on the outside of the tank for sensing water levels without the use of a probe.

Y ___ N ___

POLYPRENE TANK

The booster tank shall be constructed of 1/2" thick polypropylene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

COVER: The tank cover shall be constructed of 1/2" thick polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped 1/2" x 2" to accommodate the lifting eyes.

BAFFLES: The swash partitions are manufactured of 1/2" polyprene. All partitions are equipped with vent and air holes to permit movement of air and water between compartments to provide to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING: The tank shall rest on the sub-frame cross members with an unsupported area not to exceed 530 square inches on tanks up to 40" in height. On tanks over 40" in height, an unsupported area of not more than 400 square inches must be maintained. All tanks shall be isolated from those cross members with a minimum of 2" x 1/4" hard rubber strips that are 60 durometer in hardness. The tank shall sit cradle mounted in the under body sub-frame and shall be completely removable without disturbing the body side panels. The sub-frame shall consist of 3" x 1 1/2" channel cross members and 3" x 1 1/2" channel which shall extend around the entire perimeter of the tank and be welded to the cross-members. The channels will keep the tank from shifting front to back or side to side.

Y ___ N ___

FILL TOWER: Fill opening shall be approximately 12" x 12". The tower will have a 1/4" thick removable polyprene screen and a polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable 1/4" thick polyprene screen to prevent debris from falling into the tank. The fill tower shall have a 4" overflow that will discharge underneath the tank, behind the rear wheels. The overflow shall terminate above the tank water level when filled to the rated capacity.

Y ___ N ___

The fill tower shall be located in the left front hose bed.

Y ___ N ___

SUMP: The sump will be constructed of 1/2" polypropylene and be located inline with the tank suction valve. There shall be a 4" schedule 40 polypropylene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2" above the sump.

Y__N__

The sump shall have a 3" plug for use in draining and cleaning out the tank.

Y__N__

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

Y__N__

OVERHEAD LADDER RACK

There shall be a fold down ladder rack assembly furnished on the apparatus. The ladder rack shall be a 12 volt electric over hydraulic actuated pivot assembly to fold the ladder rack down from overtop of the high side compartments to the side of the compartments. There shall be a fold down hinged door furnished to open automatically when the ladder rack is lowered. This door will also provide access to the actuator and safety lock when service is required. There shall be a spring loaded quarter turn latch furnished to hold the ladders on the rack when it is in any position. There shall be an automatic safety latch to hold the ladder rack in the stowed position. Flashing LED warning lights shall be provided at the front and rear of the ladder rack and shall automatically activate when the ladder rack is in the down position. When the ladder rack is in motion, the chassis backup alarm shall sound. When the ladder rack is in the down position the bottom of the rack shall be 48" from the ground with a frame height of 41". When the apparatus is equipped with hinged doors, an interlock shall be installed in the ladder rack circuit to prevent ladder rack operation when any doors are not closed.

Y__N__

The ladder rack shall be constructed with brushed finished stainless steel.

Y__N__

The ladder rack shall be located on the right side of the apparatus body.

Y__N__

The ladder rack shall accommodate mounting:

- one (1) 14 foot aluminum roof ladder
- one (1) 24 foot two section aluminum Duo-Safety extension ladder
- one (1) ten foot pike pole
- one (1) 8 foot trash hook.

Y__N__

COMPARTMENT DIVIDERS

Sheet metal compartment dividers shall be installed in the over-wheel compartments. These dividers shall aid in keeping loose equipment from falling into the front and/or rear compartments.

COMPARTMENT FLOOR MATTING

Y___N___

Black floor tile shall be installed on six (6) compartment floors. The tile shall be custom fitted to the interior compartment construction to help in protecting the entire surface of the compartment floor from equipment damage.

SHELVING

Y___N___

Each shelf shall be fabricated of .190 thick aluminum sheet material with the outside and inside edges flanged up to prevent equipment from sliding off of the shelves. Each shelf shall be as wide as possible to allow proper attachment to the above described unistrut channels. Shelves shall be adjustable up and down. Shelving shall be supplied in the following locations:

Five (5) shelves shall be installed in the compartments specified.
One (1) fixed shelf

Y___N___

Each shelf or tray shall be fitted with protective black matting for a pleasing appearance and durability.

Y___N___

ROLL OUT TRAYS

There shall be two (2) roll out trays installed in L3 and R3 compartments. The tray shall be approximately 40" wide and 24" deep. Each roll-out system shall be bolted to the compartment floor for rigid and sturdy mounting. Each rollout tray system shall incorporate a pair of cadmium plated, ball bearing roller slides with a pneumatic hold-open and closed device. This system eliminates the need for clumsy latching devices and firmly holds the tray in the open or closed position. The roll-out tray shall be rated for 500 lbs. and extend to 100% of the slide capacity.

Y___N___

Each shelf or tray shall be fitted with protective black matting for a pleasing appearance and durability.

Y___N___

OVERLAYS

All aluminum used in an overlay area shall be bright type 3003, 1/8" thick diamond plate material coated with 3M sealant and adhesive on the back sides to protect and to put an insulating barrier between dissimilar metals to assist in corrosion resistance.

The following areas shall have aluminum diamond plate overlays installed:

- The front faces of the apparatus compartments as well as the front header of the hose bed area.
- The entire back of the apparatus body including both the side compartment and rear compartment back areas.

Y___N___

The catwalks shall be approved stepping surfaces constructed of knurled tread plate approved by the latest NFPA standards for abrasiveness.

Y___N___

KNURLED SST HANDRAIL SPECIFICATIONS

All handrails shall be 1 1/4" in diameter, constructed of knurled #3 polished stainless steel tubing. There shall be a 2" minimum clearance between the bracket and the body.

The following handrails shall be installed at the approximate lengths noted:

Y___N___

KNURLED SST INSERT HAND RAILS

There shall be three (3) hand rails installed on the rear of the apparatus. Each hand rail shall provide approximately 42 inches of gripping area for personnel. Each hand rail shall be constructed of a knurled #3 polished stainless steel tubing to provide a positive grip. The handrails shall be spaced away from the body using chrome plated ends. Two (2) vertical hand rails shall be installed, one on each side, just below the hose bed sides. The remaining hand rail shall be installed horizontally, just below the hose bed area.

Y___N___

TOW EYES

There shall be two rear tow eyes attached to the frame rails, accessible below the rear center compartment. They shall be manufactured of 1" plate steel and each plate shall be bolted to the chassis frame rail with a minimum of 6 grade 5 bolts. The two plates shall be anchored together with 1" steel tubing to prevent swaying of the frame rails during a towing operation.

Y___N___

LOW-VOLTAGE ELECTRICAL SYSTEM

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

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

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

As-built electrical system drawings and a vehicle-specific reference of I/O shall be furnished in the delivery manuals. These drawings shall show the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end.

A single drawing for all electrical circuits installed by the apparatus builder shall not be accepted.

Y___N___

LED DOT LIGHTING

There shall be seven (7) lights located on the rear of the vehicle. Three (3) of the lights shall be mounted as high as possible on the rear face of the body for use as identification lamps. Two (2) lights shall be located as high and wide as possible on the rear, one each side and two (2) lights as high as possible on the sides facing the side, for use as clearance lamps.

There shall also be two (2) amber intermediate turn signals on the sides of the apparatus, one (1) each side, between the front and rear axles for identification and turn signaling as required.

The lights shall be Weldon brand 9186-1500 series LED red and amber markers.

Y___N___

REAR TAIL LIGHT CLUSTER

There shall be a rear tail light cluster furnished and installed in a polished bezel at the rear of the apparatus, one each side. The cluster shall be manufactured by Whelen and consist of the following:

- 1 - Whelen #60 LED series red brake light
- 1 - Whelen #60 Clear backup light (Halogen)
- 1 - Whelen #60 LED series amber turn signal light populated in the shape of an arrow

Each tail light cluster shall be mounted on a removable panel of the same material as the rear overlay for easy access to the electrical distribution centers at each rear corner of the apparatus body.

Y___N___

BACKUP LIGHTS

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

Y___N___

PUMP/TRANSVERSE COMPARTMENT LIGHTING

There shall be one (1) 12 volt work lights installed in the pump/transverse compartment. Each light shall be activated with a switch located on each light and shall be enclosed in an ABS case. Each light head shall be removable and have a retractable wire that can be extended a minimum of 10 feet to allow maintenance personnel to relocate and direct the light as needed.

Y___N___

COMPARTMENT LIGHTING

There shall be four (4) lights mounted in each body compartment, located on the vertical unistrut. There shall be two lights on the forward wall and two lights on the rear wall. Each light shall be mounted in such a way that it is vertically adjustable with wiring slack to allow for future repositioning. The lights in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors. The lights shall be manufactured by Weldon and be model #2030.

Y___N___

PERIMETER LIGHTS

There shall be four (4) underbody perimeter lights furnished and installed in addition to the chassis provided. One (1) under each side of the front of the body, and two (2) under the rear step to illuminate the ground around the truck. They shall be manufactured by Trucklite and be model # 40003.

Y___N___

UPPER LIGHTING PACKAGE

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

Y___N___

ZONE A: There shall be a 72" Edge Ultra Freedom lightbar installed. The lightbar shall house two (2) corner red linear LEDs, two (2) front red linear LEDs, two (2) front white linear LEDs and two (2) side red linear LEDs. The outer lenses shall be clear. The lightbar shall be manufactured by Whelen and be model FN72QLED.

Y___N___

ZONE C: There shall be two (2) Whelen beacons, with 360 degree LED lights installed at the rear upper outboard corners of the apparatus. The beacons shall be model L31HRFN with red lenses.

Y___N___

CAST ALUMINUM LIGHT STANCHIONS

Two light stanchions shall be mounted in the upper rear corners of the body sides, one each side. Each shall be large enough to accommodate an upper zone C rotating beacon and a hose bed light if specified. The DOT lights specified elsewhere in the quote shall also be located one on the side and the other located on the rear of each stanchion.

LOWER LED WARNING LIGHTING

ZONE A: There shall be two (2) Whelen model 60R02FCR 4"x6" flashing red linear Super-LED lights with clear lenses and chrome bezels installed on the front of the chassis specified.

Y__N__

ZONES B&D: There shall be six (6) Whelen model 60R02FCR 4"x6" flashing red linear Super-LED lights with clear lenses and chrome bezels installed three (3) on each side of the apparatus.

Y__N__

ZONE C: There shall be two (2) Whelen model 60R02FCR 4"x6" flashing red linear Super-LED lights with clear lenses and chrome bezels installed on the rear of the body.

Y__N__

LOWER ZONES B&D CAST ALUMINUM LIGHT HOUSING

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

Y__N__

HOSE BED SPOT AND FLOOD LIGHTS

There shall be two rear deck lights, one spot and one flood, furnished and installed at the rear of the apparatus. The Unity brand lights shall be 6" in diameter and be 50 watts each.

Y__N__

HONDA 5k GENERATOR

There shall be a 5000 watt 110/220 volt electric start generator with automatic idle and recoil back up furnished with the apparatus. The electric start shall be adjacent to the generator. It shall be manufactured by Honda and be model # EM5000SXX1A. If a remote start is provided an interlock circuit will allow the generator to start only if the compartment door is open.

Y__N__

GENERATOR MOUNTING

The generator shall be mounted in the rear, officer side compartment (R3) of the apparatus on a roll out tray.

Y__N__

There shall be one (1) roll out trays installed in the specified compartment. The tray shall be approximately 40" wide and 24" deep. Each roll-out system shall be bolted to the compartment floor for rigid and sturdy mounting. Each rollout tray system shall incorporate a pneumatic hold-open and closed device. This system eliminates the need for clumsy

Y__N__

latching devices and firmly holds the tray in the open or closed position. The roll-out tray shall be rated for 220 lbs. and extend to 100% of the slide capacity.

Y___N___

GENERATOR COMPARTMENT PARTITION

The generator compartment shall have permanent partition installed to isolate the compartment from adjoining compartmentation for the proper ventilation/dissipation of fumes. The partition shall be constructed of the same materials as used in the body structure and shall be welded in place to form a permanent wall.

Y___N___

LOAD CENTER

There shall be a electrical load center furnished and installed in a protected environment. The load center shall have provisions for eight (8) 20 amp manual reset type circuit breakers.

TELESCOPING LIGHTS

There shall be two (2) Fire Research Focus side mounted, bottom raise telescoping scene lights installed on the apparatus as specified below. The light poles shall have a friction type lock to hold the pole in the extended position. The lights shall be 120 volt 750 watt. The lights shall be model FCA530-S75.

Y___N___

The scene lights shall have a switch on the lighthouse.

Y___N___

A mirrored stainless steel protector shall be installed behind each light head to protect the surface behind the light(s) from being scratched.

Y___N___

Two (2) lights shall be mounted on the rear face of the custom chassis cab.

Y___N___

ELECTRICAL CORD REEL

There shall be one (1) Hannay ECR-1616-17-18 series electric rewind cord reel furnished and installed on the apparatus. A push button switch to activate the rewind shall be located next to the reel. There shall be a four way roller assembly mounted on the reel to guide the cord on and off of the spool. There shall also be a cord stop supplied. The reel shall come equipped with 150 feet of black 10-3 electrical cord with a NEMA L5-15 R end. The cord reel should be mounted near the generator.

Y___N___

A Circle D remote power distribution box with (4) four single receptacles shall be provided. The distribution box shall be stored in a mounting bracket when not in use. The box shall be equipped with a light to indicate when distribution box is energized.

Y___N___

The distribution box shall be equipped with a NEMA L5-15 male end and the following receptacles:

- Position 1: NEMA L5-15 R
- Position 2: NEMA L5-15 R
- Position 3: 15A 125 V Standard
- Position 4: 15A 125 V Standard

UNDERCOATING

Because the apparatus is constructed of materials that are weather and corrosion resistant, there shall be no undercoating provided on the apparatus. Y__N__

REFLECTIVE STRIPING

There shall be a 6" high reflective "Scotch-lite" stripe applied to the outside perimeter of the chassis and apparatus. Y__N__

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

The reflective striping shall be white in color. Y__N__

LICENSE PLATE BRACKET

A Cast Products, model LP0005, cast aluminum license plate bracket shall be installed on the apparatus. The bracket shall incorporate proper lighting provisions to illuminate the license plate to meet DOT requirements. Y__N__

ZICO WHEEL CHOCKS

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

GROUND LADDERS

- one (1) Duo-Safety 24' two (2) section aluminum extension ladder(s), model 900A Y__N__

Y__N__

- one (1) Duo-Safety 14' aluminum roof ladder(s) with folding hooks, model 775A

Y___N___

- one (1) Duo-Safety 10' folding aluminum attic ladder(s), model 585A

All ladders shall be mounted on the ladder rack.