109 EAST BROADWAY • ALEXIS, ILLINOIS 61412 • P 800.322.2284 • F 309.482.6127 • SALES@ALEXISFIRE.COM

Gentlemen:

We hereby propose to furnish, after your acceptance, approval, and proper execution of the accompanying contract, the fire apparatus as follows:

One (1) Alexis Custom Side Control Pumper

As per specifications attached herewith.

TOTAL APPARATUS.....$ *

* Does not include any applicable taxes. Any local or state tax, if applicable, must be added to the above price.

Shipment of completed apparatus shall be made within 330 calendar days after our approval of properly signed contract, subject to causes beyond our control. This proposal is made subject to your acceptance within thirty (30) days from date of same. If acceptance is delayed beyond that period, we will, upon request, advise you of any increase in said amount which may be occasioned by causes beyond our control.

Respectfully submitted,
ALEXIS FIRE EQUIPMENT COMPANY

By: _____

"QUALITY HAS NO SUBSTITUTE"

PAYMENT TERMS

OPTION 1

The chassis payment shall be made within ten (10) days of invoicing.

A progress payment of $ shall be made within ten (10) days of invoicing, upon the initial construction of the apparatus body.

The balance of the contract plus any contract alterations shall be payable upon the delivery of the finished unit.

Upon payment, the Alexis Fire Equipment Company shall furnish the purchaser a "Statement of Origin" or the necessary validated documents required for title application.

OPTION 2

An up-front payment of $ shall be made within ten (10) days of contract signing. The ___ Fire Department may **DEDUCT $** from the front page price for this payment.

The balance of the contract plus any contract alterations shall be payable upon the delivery of the finished unit.

Upon payment, the Alexis Fire Equipment Company shall furnish the purchaser a "Statement of Origin" or the necessary validated documents required for title application.

Additional payment terms available upon request.

ISO 9001:

Alexis Fire Equipment Company operates a Quality Management System under the requirements of ISO 9001. These standards, sponsored by the "International Organization for Standardization (ISO)," specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service.

DIGITAL PHOTOGRAPHS:

Digital photographs of apparatus under construction are taken on a weekly basis and emailed to a department supplied email address. Additionally, these photos are uploaded to our website at www.alexisfire.com allowing those department members who may not have access to the emailed photos to track the progress of the unit.

SERVICE CENTER:

The Alexis Priority-One service team is staffed with factory trained mechanics ready to meet your service requirements. Our staff is continually working on maintaining updated EVT and ASE certification.

The Alexis Service Team is available 24 hours a day, 7 days a week for your service emergencies. We use the latest paging system for fast, efficient and reliable service.

Our service facility covers an area of approximately 14,000 square feet.

The Alexis Service Team can assist you in fire apparatus service, ambulance service, aerial device maintenance, generator and rescue tool maintenance and service, and air pack inspections. Our staff can provide our customers with a complete apparatus training program, meeting the latest training requirements.

Alexis is a single source warranty center for the following manufacturers: HME, Spartan Motors, Hale Products, and Waterous.

Our service team has over 50 years of cumulative experience in the fire service industry. In addition, they are backed by our fabrication, electrical, and paint and finish departments. This combination of training and hands-on experience offers true reliability and dependability.

Alexis keeps detailed documentation of all repair, maintenance, and inspection performed by our personnel. With time and manpower at such a premium among many fire departments, why not allow the Alexis Service Team to set up and maintain records for your fleet?

The Alexis Service Team is committed to providing prompt and courteous service, quality products and fair pricing.

Business: Alexis Fire Equipment Company
Contact Person: Barb Lafferty
Location: 109 East Broadway Alexis, IL 61412
Phone: **800-322-2284**

DELIVERY:

The finished apparatus shall be picked up by the dealer organization at the plant site of the Alexis Fire Equipment Company in Alexis, Illinois.

To insure proper break-in of all drive train components while under warranty, the finished apparatus shall be delivered to the purchaser under its own power.

The apparatus shall be covered by comprehensive and liability insurance during the delivery period. The purchaser shall assume the insurance obligation on acceptance, and at that time shall present to the manufacturer's agent a certificate of verification, showing liability, comprehensive and collision insurance coverage.

GENERAL INFORMATION:

LOCATION

The Alexis Fire Equipment facilities are located at 109 East Broadway, Alexis, Illinois 61412. We maintain a complete stock of parts and services available around-the-clock. We also propose to maintain parts and service for a minimum period of twenty (20) years on all apparatus which is manufactured.

NOTATION

To further assure the customer of our ability to manufacture quality fire apparatus, we are proud of the fact that Alexis Fire Equipment Company is family-owned and has been in the fire apparatus business since 1947.

PERSONNEL CAPACITIES

To meet the spirit of N.F.P.A. 1500 paragraph 6.3.1, this apparatus has been designed to transport not more than _____ people.

6.3 Riding in Fire Apparatus

6.3.1 All persons riding in fire apparatus shall be seated and belted securely to the vehicle by seat belts in approved riding positions and at any time the vehicle is in motion. Standing or riding on tailsteps, sidesteps, running boards or in any other exposed position shall be specifically prohibited.

MAXIMUM TOP SPEED:

To meet the intent of NFPA 1901 4.15.2, the top speed of the vehicle shall not exceed 68 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

INFORMATION TO BE PROVIDED:

Alexis Fire Equipment Company shall supply, at the time of delivery, the following documents:

A) The manufacturer's record of apparatus construction details, including the following information:
   1. Owner's name and address

2. Apparatus manufacturer, model, and serial number.
3. Chassis make, model, and serial number.
4. GAWR of front and rear axles.
5. Front tire size and total rated capacity in pounds.
6. Rear tire size and total rated capacity in pounds.
7. Chassis weight distribution in pounds with water and manufacturer mounted equipment.
8. Engine make, model, serial number, number of cylinders, bore, stroke, displacement and compression ratio, rated horsepower and related speed, and no-load governed speed.
9. Type of fuel and fuel tank capacity.
10. Electrical system voltage and alternator output in amps.
11. Battery make and mode, capacity in CCA.
12. Transmission make, model, and type.
13. Pump to drive through the transmission (yes or no)
14. Engine to pump gear ratio used
15. Pump make, model, rated capacity in g.p.m., serial number, number of stages, and impeller diameter in inches.
16. Pump transmission make, model, and serial number.
17. Priming device type.
18. Type of pump pressure control system.
19. Auxiliary pump make, model, rated capacity in g.p.m., serial number, number of stages, and impeller diameter in inches.
20. Water tank certified capacity in gallons.
21. Aerial device type, rated vertical height in feet, rated horizontal reach in feet, and rated capacity in pounds.
22. Paint numbers
23. Company name and signature of responsible company executive.

B) If the apparatus has a fire pump, the pump manufacturer's certification of suction capability.
C) If the apparatus has a fire pump, a copy of the apparatus manufacturer's approval for stationary pumping applications.
D) If the apparatus has a fire pump, the engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no-load governed speed.
E) If the apparatus has a fire pump, the pump manufacturer's certification of hydrostatic test.
F) If the apparatus has a fire pump, the certification of inspection and test for the fire pump.
G) If the apparatus has an aerial device, the certification of inspection and test for the aerial device.
H) If the apparatus has an aerial device, all the technical information required for inspections to comply with NFPA.
I) Weight documents from a certified scale - showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full but without personnel, equipment, and hose) - shall be supplied with the completed vehicle.
J) Written load analysis and results of the electrical system performance tests.

K) If the apparatus is equipped with a water tank, the certification of water tank capacity.
L) If the apparatus has a fire pump, two (2) copies of the pump operation and maintenance manual.
M) Two (2) destination effective wiring diagrams.
N) Copies of electrical and mechanical component manuals for equipment purchased on or with the apparatus.
O) A sketch of the booster tank indicating all dimensions and baffle locations.
P) If the apparatus has a pump, one (1) certification of third party test

WARRANTY:

Alexis Fire Equipment Co., Inc. warrants each new piece of fire and rescue apparatus manufactured by Alexis to be free from defects in material and workmanship under normal use and service for a period of one year from the date of delivery. Our obligation under this warranty is limited to furnish any parts to replace those that have failed due to defective material or workmanship, as the company may elect, provided that such part, or parts shall be returned to us not later than one year after delivery of such vehicle. All water tanks will be warranted as stated herein and may have extended warranty as explained elsewhere in the Alexis Fire Equipment Co. Proposal.

This warranty will not apply:

24. To normal maintenance services including, but not limited to, electrical lamps, valve seals, normal lubrication and/or proper adjustment of minor items.

1. To any vehicle which shall have been repaired or altered outside of our factory, in any way so as, in our judgment, to affect its stability, nor which has been subject to misuse, negligence, or accident, nor to any vehicle made by us which shall have been operated at a speed exceeding the factory rated speed, or loaded beyond the factory rated load capacity.

1. To the chassis and associated equipment furnished with chassis, signaling device, generators, batteries or other trade accessories. These are warranted separately by their respective manufacturers.

1. To work performed by an outside service without prior authorization obtained from Alexis Fire Equipment.

1. To costs incurred from an outside service for non-warranty related items.

This warranty is in lieu of all other warranties, expressed or implied, and all other representations to the original purchaser and all other obligations or liabilities, including liability for incidental or consequential damages on the part of the company. We neither assume nor authorize any person to give or assume any other warranty or liability on the company's behalf unless made or assumed in writing by

the company.

LENGTH AND/OR HEIGHT LIMITATIONS:

OVERALL HEIGHT:

The OAH of the unit shall not exceed 10’.

OVERALL LENGTH:

The OAL of the unit shall not exceed 33’.

MUD FLAPS:

Each rear fender shall be extended with a black rubber mud flap, thus preventing splash and road debris from damaging the apparatus body.

LABELS:

A permanent plate in the driving compartment shall 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 applicable)
--Drive Axle(s) Lubrication Fluid
--Air-Conditioning Refrigerant
--Air-Conditioning Lubrication Oil
--Power Steering Fluid
--Cab Tilt Mechanism Fluid
--Transfer Case Fluid
--Equipment Rack Fluid
--CAFS Air Compressor System Lubricant
--Generator System Lubricant
--Front Tire Cold Pressure
--Rear Tire Cold Pressure
--Maximum Tire Speed Ratings

A final manufacturer's certification of the GVWR or GCWR along with a certification of each GAWR,

shall be supplied on a label affixed to the vehicle.

A sign that reads "Occupants Must Be Seated and Belted When Apparatus Is in Motion" shall be provided. The sign shall be visible from each seated position.

A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.

A sign stating the overall height of the vehicle in feet and inches, the overall length of the vehicle in feet and inches, and the GVWR in tons shall be provided and mounted. The sign shall be visible to the driver of the vehicle while seated.

A label stating “Do Not Wear Helmet While Seated” shall be visible from each seating position.

FUEL TANK:

The chassis shall incorporate a rear fuel tank installed by the chassis manufacturer. The fill and vent shall be installed behind the left rear wheel in a recessed polished aluminum housing with a hinged door. The fill shall be labeled with the type of fuel intended.

GRAVEL SHIELD:

The bumper extension shall be decked with 3003-H12 polished aluminum treadplate.

HOSE WELL:

A hose well shall be recessed in the bumper extension at the center. It shall be constructed of 5052 H32 aluminum sheet and 3003-H12 aluminum treadplate. A raised ventilating deck shall be installed in the bottom to insure proper hose ventilation and drying.

TREADPLATE HOSEWELL COVER:

There shall be a treadplate cover installed on the hosewell.

AIR LIMITOR:

A limitor valve shall be installed on the chassis air reserve tank, eliminating the use of all air accessories when the chassis air pressure is under 100 psi., thus reserving all available air for braking effort.

HELMET STORAGE:

To meet the intent of NFPA 14.1.8.4.1, the helmet for each occupant shall be stored in an exterior compartment.

MAP BOX:

An aluminum map box shall be mounted in the cab. The map box shall have a DA finish.

LOCATION: Doghouse mounted between officer and driver

PUMP AND PIPING:

MIDSHIP PUMP:

MANUFACTURER: Hale Fire Pump Co.
MODEL: DSD150

CAPACITY: 1500 gpm. @ 150 psi.
SUCTION SIZE: 6" NST

PUMP ASSEMBLY

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA-1901 rated performance.

The entire pump shall be assembled and tested at the pump manufacturer's factory.

The pump shall be driven by a driveline from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance.

The entire pump shall be hydrostatically tested to a pressure of 600 psi. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Pamphlet No. 1901. Pump shall be free from objectionable pulsation and vibration.

The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi. (2069 bar.) All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump utilizing castings made of lower tensile strength cast iron not acceptable.

Pump body shall be vertically split, on a single plane for easy removal of entire impeller assembly including clearance rings

Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be

heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.

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

Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body.

The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

GEARBOX

Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2¾" in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.

All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. (No exceptions.)

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

SUCTION PIPING

The suction piping shall be 6" 304 stainless steel piping. The piping shall be heliarc welded with a smooth interior tube for laminate flow. To assure flow, the suction shall have a 6" cast stainless steel yoke designed in the eye of the impeller area. The suction arms on each side shall be designed for future installation of built-in butterfly valves.

DISCHARGE PIPING

The discharge manifold shall be manufactured of stainless steel rectangular tubing. The discharge manifold shall be pressure tested prior to installation on the pumping system.

HALE ESP -12 PRIMING PUMP:

The priming pump shall be a positive displacement, oil-less rotary vane electric motor driven pump conforming to the requirements of NFPA 1901. The pump body shall be manufactured of heat-treated anodized aluminum for wear and corrosion resistance.

The pump shall be capable of producing a minimum 24 Hg vacuum at 2000 feet above sea level.

The electric motor shall be a 12 VDC totally enclosed unit.

The priming pump shall not require lubrication.

The priming pump shall be operated by a single push-pull control valve mounted on the pump operator panel. The control valve shall be of all bronze construction.

DRIVELINES:

The chassis drivelines shall be modified to accept the pump drivelines. The pumping system drivelines shall be manufactured by the apparatus manufacturer. The drivelines shall be professionally balanced by the apparatus manufacturer to ensure complete system balance.

6" SUCTION:

One (1) 6" NST suction shall be located on each side of the apparatus body. The suctions shall be open and not gated. An inlet screen and a 6" handle cap shall be included.

PUMP DRAINS:

The entire pump and its controls shall be drainable with a master drain piped to the lowest points of the pump and its control piping. The master drain shall be of a threaded design that will seal all drain points without allowing recycle.

HALE MECHANICAL SEAL:

Optional mechanical seal in place of pump packing. One (1) only required on the suction (inboard) side of the pump. The mechanical seal must be 2" in diameter and shall be spring loaded, maintenance free and self-adjusting. Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber cup, and a tungsten carbide seat with Teflon backup seal.

AIR PUMP SHIFT:

The shifting mechanism shall be a heat-treated, hard anodized aluminum power cylinder, with stainless steel shaft. The assembly shall be plumbed utilizing a 3/8" air line for maximum performance. An in-cab control for rapid shift shall be provided that locks in road or pump.

For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operators panel adjacent to the throttle control. For manual transmissions, one green warning light will be provided for the driving compartment. All lights shall have appropriate identification/instruction plates.

PRESSURE GOVERNOR and MONITORING DISPLAY

One (1) Fire Research PumpBoss model PBA100-A00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8" wide by 1 3/4" deep. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

CHECK ENGINE and STOP ENGINE warning LEDs
Engine RPM; shown with four daylight bright LED digits more than 1/2" high
Engine OIL PRESSURE; shown on an LED bar graph display in 10 psi increments
Engine TEMPERTURE; shown on an LED bar graph display in 10 degree increments
BATTERY VOLTAGE; shown on an LED bar graph display in 0.5 volt increments
PSI / RPM setting; shown on a dot matrix message display
PSI and RPM mode LEDs
THROTTLE READY LED.

A dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. The brightness of the displays shall be automatically adjusted for day or night viewing.

The program shall store the accumulated operating hours for the pump and engine, previous incident hours, and current incident hours in a non-volatile memory. Stored elapsed hours shall be displayed at the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Engine RPM
Pump Overheat
High Transmission Temperature
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)

High Battery Voltage
Low Engine Oil Pressure
High Engine Coolant Temperature

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A control knob that uses optical technology shall adjust pressure or RPM settings. It shall be 2" in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center.

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

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

INTAKE (SUCTION) RELIEF VALVE:

One (1) Elkhart Model 40 intake relief valve shall be installed on the suction side of the pump. The minimum range shall permit control from 75 to 250 psi. (per NFPA 4-5.1).

INDIRECT ENGINE COOLER:

A supplementary heat exchanger cooling system shall be provided for the pump drive engine. It shall be installed to permit water from the discharge side of the pump to cool the coolant circulating through the engine cooling system without intermixing. The heat exchanger shall maintain the temperature of the coolant in the pump drive engine not in excess of the engine manufacturer temperature rating under all pumping conditions.

REQUIRED PUMP TESTING:

If the fire pump has a rated capacity of 750 gpm or greater capacity, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus. The tests shall be conducted at the Alexis facility and certified by an EVT Certified pump operator. The certification shall include (at least) the following tests: the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test. If the apparatus is equipped with a water tank, the water tank to pump flow test shall be included.

A test plate shall be provided at the pump operator's position that gives the following information: the rated discharges and pressures, the speed of the engine determined by the certification test for each unit, the position of the parallel/series pump as used, and the no-load governed speed of the engine stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be completely stamped with all information at the factory and attached to the vehicle prior to shipping.

PUMP CERTIFICATION:

Upon final apparatus delivery, the original copy of the certificate of inspection by an independent third party shall be furnished.

The pumping system shall be capable of delivering:

100 % of rated capacity at 150 psi. net pump pressure
70 % of rated capacity at 200 psi. net pump pressure
50 % of rated capacity at 250 psi. net pump pressure

PUMP MODULE - SIDE CONTROL:

A free-standing pump module shall be located between the chassis cab and the body.

The pump module shall be a self supported structure mounted to the frame separate from the cab and body. The pump module shall be designed and constructed to withstand normal stress and flexing of the chassis frame. The pump module shall be attached to the frame in a minimum of four (4) locations using a rubber cushion mounting system.

The pump operator's panel shall be located on the left side of the apparatus and the suction/discharge panel shall be located on the right side of the apparatus.

An automotive rubber seal shall be adhered to the pump panel to reduce vibration that may occur during pump operation or road application. The panel shall be attached to the framing with 3/16" pin, 1" knuckle, and continuous stainless steel hinges. The hinges shall be attached with stainless steel fasteners.

Each panel shall be secured with two latches top and bottom of the door opening.

The top left operator's panel shall be hinged for access to the individual gauges and the electrical components. The bottom left and the right side panels shall be hinged for pump, valve, and piping access. No exceptions.

All pump panel gauges and controls shall be identified with color-coded tags.

PUMP OPERATOR'S PANEL:

The pump operator's panel shall include the following:

One (1) Class 1 line reading gauge for each discharge. The gauges shall be white-faced, silicone filled pressure gauges and handle pressures from 0 to 400 PSI. The pressure gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40 degrees F. The cases shall be temperature compensated with an internal breathing diaphragm to permit filled cases and to allow a rigid lens with a distortion free viewing area. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature material and be sealed from the water system using an insolating Sub Z diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

One (1) tank gauge receiver

One (1) recycle/tank fill

One (1) primer control

One (1) pump panel light switch

Color Coded Tags - 2 ½" long x ¾" high manufactured by FireShoppe.

Test Connection

All other indicator lights required by NFPA 1901

PUSH BUTTON ON PUMP PANEL FOR AIR HORNS:

There shall be a push button provided on the pump panel to activate the air horns.

RUNNING BOARDS

The running boards shall be constructed of 3/16" thick 3003-H14 aluminum treadplate and shall be attached to the outriggers on the pump module.

There shall be a treadplate scuff area above the side discharge panels.

PUMP PANELS:

Alexis-2063

The pump operator's panel and discharge panels shall be manufactured of .190 smooth aluminum and shall include full width aluminum light hoods with two (2) Weldon 2030-7130-30 lights.

The side discharge panel on passenger side of the apparatus shall be manufactured of .190 smooth aluminum and shall include two (2) Weldon 9186-23882-30 on the side panel above the discharge panel.

The panels shall be coated with a flexible black polyurethane material. The material gives the panels a glare resistant and chemically resistant finish that is designed for the fire industry.

2 ½" DISCHARGE PIPING:

There shall be one (1) 2 ½" discharge shall be located on the left side of the apparatus. The discharge valve shall be located behind the body panel and be controlled from the pump operator's panel. It shall include a self-locking 2½" quarter-turn ball valve, a 2½" chrome cap with a chain, and a sweep elbow of at least 30 degrees downward.

2 ½" DISCHARGE PIPING:

There shall be one (1) 2 ½" discharge located on the right side of the apparatus. The discharge valve shall be located behind the body panel and shall be controlled from the pump operator's panel. It shall include a self-locking 2½" quarter-turn ball valve, a 2½" chrome cap with chain, and a sweep elbow of at least 30 degrees downward.

3" DISCHARGE, APPARATUS RIGHT SIDE:

One (1) 3" discharge shall be located on the right side of the apparatus with the valve behind the body panel. The discharge shall be remote controlled from the pump operator's panel. A 2½" sub-zero liquid filled gauge shall be adjacent to the control. The valve shall measure 3" and include an Akron Slo-Cloz adapter.

DISCHARGE ADAPTER:

The 3" discharge shall incorporate one (1) 3" NST LHF x 5" Storz 30 degree elbow with blind cap.

2 ½" DISCHARGE, APPARATUS REAR:

One (1) 2½" discharge shall be located on the rear of the apparatus, on the right side. The discharge shall be controlled from the pump panel. It shall include a self-locking 2½" quarter-turn ball valve, a 2½" chrome cap with chain, and a sweep elbow of at least 30 degrees downward.

TANK TO PUMP LINE:

One (1) 3" tank to pump line shall be installed into the tank to the suction side of the pump. It shall have 4" piping and valved with a 3" full flow valve. The valve shall be controlled form the pump operator's panel. The tank line shall incorporate a check valve in the line to meet NFPA 1901.

LINE DRAINS FOR DISCHARGES:

Each rated 2½" discharge and those of larger sizes shall incorporate a ¾" automatic drain hosed to ground. The drain shall have an all brass body with stainless steel check assembly. The drain shall be normally open and closes when the pressure is greater than 6 psi.

GATED SUCTION, LEFT SIDE:

One (1) 2½" gated suction shall be located on the left side of the apparatus. It is to be piped 2½" i.d., including an Akron 2½" full flow quarter turn valve, and a 2½" NST female swivel with plug and chain. It is to be controlled from the suction location.

FIXED MONITOR PIPING:

One (1) 3" discharge shall be located on the deck over the pump compartment. The discharge shall be flanged to adapt to a permanent mounted deck pipe. The piping shall be reinforced to allow rated deck pipe flow without piping distortion. The discharge valve shall be a quarter turn 3" full flow valve located in the pump compartment. It shall be controlled from the pump panel. The deluge and its control shall be positioned so the pump operator shall have complete control. The valve shall be a slow close valve per NFPA requirements.

Each above valve shall be manually controlled.

ULTIMATE PRECONNECTS - TWO (2) 1½" AND ONE (1) 2½":

Two (2) Ultimate 1½" preconnects shall be incorporated at the front of the apparatus body. Each preconnect shall include a 1½" Elkhart 348 swivel adapted to 1½" fire hose thread. The waterways shall measure 2" i.d. and include a 2" full flow quarter turn ball valve that is controlled from the operator's panel.

One (1) Ultimate 2½" preconnect shall be incorporated at the front of the apparatus body. The preconnect shall include a 2½" swivel adapted to 2½" NST. The waterway shall measure 2½" i.d. and include a 2½" full flow quarter turn ball valve that is controlled from the operator's panel.

Each preconnect shall be designed for a cartridge lay or speedlay application. The preconnect area shall be open at the front nose panel area to allow for ventilation in either application and hose loading in the speedlay application. Unless otherwise specified, each 1½" preconnect shall have the capacity to contain not less than 200' of 1¾"double jacket hose and the 2½" preconnect shall have the capacity to contain not less than 150' of 2½" double jacket hose.

Each above valve shall be manually controlled.

Aluminum trays shall be incorporated with the system. Each tray shall be constructed of 6061-T6 .125 aluminum sheet that is rigidly reinforced to accommodate the intended usage. Each cartridge shall be securely retained in the apparatus when in place. Aluminum abrasion plates shall be located on each side of the apparatus to protect body panels from the hose and its couplings during hose extension.

PRECONNECT HOSE RETENTION - STRAP:

The preconnect area shall include a 2" nylon strap at each end for hose retention. Each strap shall include a seat belt buckle for ease of access.

TANK FILL RECYCLE:

One 2" waterway shall be incorporated from the pressure side of the pump to the tank. The line shall be controlled from the pump panel and valved with a 2" ball valve to allow a pump cooling recycle or tank fill when pumping from draft. When fully opened, it shall have the capacity to refill the tank at 750 gpm when pumping at 100 psi.

VALVING:

Each and every apparatus valve must be an Akron Stainless Steel Ball Valve, per the following specifications.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts, and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve shall be compatible with a slow closing device. This valve shall be actuated using the manual handles, a Rack & Sector, manual gear or electric actuator. The manual handles shall be quickly adjustable to one of eight handle positions and require only 90º travel. The electric actuator shall have a 16:1 gear ratio, which actuates from fully open to fully closed in 5 seconds, a clutch-less motor and utilize an electric controller with current limiting design. The gear actuator shall operate at a 50:1 gear ratio, which operates from fully open to fully

closed in 12 rotations and utilizes 4" diameter chrome Handwheel (an optional Position Indicator shall also be available.) The valve shall be manufactured and assembled in the United States. Product must carry a 10 year manufacturer's warranty.

WARRANTY, AKRON BRASS BALL VALVE:

We warrant Akron Brass Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass will repair or replace any Swing-Out Valve which fails to satisfy this warranty. Repair or replacement shall be at the discretion of Akron Brass. Electrical Components shall carry our standard five (5) year warranty. We will not be responsible for: Wear and tear; and by improper installation use, maintenance; negligence of the owner or user; repair or modification after delivery; failure to follow our instructions or recommendations; or anything else beyond our control. WE MAKE NO WARRANTIES EXPRESS OR IMPLIED, OTHER THAN THOSE INCLUDED IN THIS WARRANTY STATEMENT, AND WE DISCLAIM ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Further we will not be responsible for any consequential, incidental, or indirect damages (including, but not limited to, any loss of profits) from any cause whatsoever. No person has authority to change this warranty.

PIPING:

All waterways described herein shall be of schedule 40 threaded stainless steel pipe, schedule 40 welded stainless steel, or "aeroquip" hose. Each shall be installed with the proper couplings to allow apparatus twisting, flexing, and complete removal for service or replacement.

PLUMBING WARRANTY:

The stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of ten (10) years or 100,000 miles. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten (10) years or 100,000 miles from the date of delivery.

PIPING CERTIFICATION:

Upon final apparatus delivery, a certification sheet shall accompany the unit stating that all piping and the pump have been hydrostatically tested to 250 psi.

BODY:

BODY WARRANTY:

Alexis Fire Equipment Company hereby extends its standard one-year fire and rescue apparatus warranty to include defects in materials and workmanship of the body as well as structural defects which, in the sole opinion of the company, substantially affect the total integrity of the body. This warranty is extended only to the original user-purchaser.

Alexis Fire Equipment warrants the 3/16" aluminum and 12 gauge stainless steel bodies, fabricated by Alexis Fire Equipment, under normal use and with reasonable maintenance, shall remain structurally sound for a period of 20 years or 100, 000 miles as long as the design of the apparatus complies with Alexis engineering practices.

The Company reserves the right to require any such repairs to be made either at Alexis Fire Equipment Company, Inc. or another approved service facility, at the option of Alexis Fire Equipment. Transportation cost to and from the servicing location is the responsibility of the user-purchaser.

The warranty shall be null and void if, upon inspection by the Company, the alleged defect is determined to have been caused by abuse, modification, accident, neglect, or lack of proper maintenance.

This warranty does not apply to the following items that are covered by a separate warranty: paint finish, hardware, door assemblies, moldings, and other accessories attached to the body. In addition, this warranty does not apply to any part or accessory manufactured by others and attached to the body.

Alexis Fire Equipment will be given a reasonable opportunity to investigate all claims. The purchaser must commence any action arising out of, based upon or relating to agreement or the breach hereof, within twelve (12) months from the date the cause of the action occurred.

Alexis Fire Equipment makes no other warranty, expressed or implied, with respect to the apparatus body and all implied warranties of merchantability and fitness for a particular purpose are hereby disclaimed.

Pumper Body - Gallon Engine One

BODY SUB-FRAME:

The body sub-framing system shall be designed for the emergency service. The sub-frame shall be independent of the chassis frame and is to be constructed of modular structural material, thereby providing a complete lift off body for later body transfer.. The sub-frame shall be bolted to the chassis frame in a shear plate method behind the rear wheels. To allow complete flexibility, the system shall be cushioned with heavy torsion blocks ahead of the rear wheels. The chassis frame shall be completely cushioned from the sub-framing system with ½" closed cell rubber.

The outriggers shall be a durable outrigger design. The outriggers shall be constructed of a special 5/16" thick "C" channel extrusion and attached to the sub-frame with 4 x 2 structural rectangular tubing, which allows total compartment and body support.

After the sub-frame is totally manufactured the sub-frame shall be galvanized in the following method with no exceptions.

- **Caustic Stage:** The steel is submersed in a hot caustic tank. This removes soil, oil, grease, and soluble plants

- **Acid Stage:** The steel is immersed in a hydrochloric acid tank to remove surface rust, mill scale, and similar deposits. The surface of the steel is pure metallic known ready to be fluxed

- **Pre-Flux Stage:** The steel is immersed in a hot pre-flux solution of zinc ammonium chloride. This prevents oxidation and keeps the surface reactive prior to dipping in molten zinc.

- **Molten Zinc Stage:** The steel is immersed in a molten zinc kettle, during this time the zinc metallurgically bonds to the iron and covers the steel with a zinc coating. All surfaces of the object are fully coated, including the inside of tubular structures and hard to reach areas.

APPARATUS FRONT PANEL:

The vertical surfaces between the body panels at the front of body shall be manufactured of .190" aluminum treadplate.

STAINLESS STEEL 304 BODY PANELS:

The apparatus body panels shall be full height and independent of the tank's sides. The body panels shall be constructed of 12 gauge 304 Stainless Steel material. The top of the panels shall be capped with 6063 3 x 1½" extruded channels that maximize the body panel strength.

APPARATUS REAR PANEL:

The vertical surfaces between the body rails at the rear, from the tailstep walkway to the hose bed, shall be manufactured of smooth stainless steel, in preparation for Chevron striping.

WHEEL HOUSING, PAINTED STAINLESS STEEL :

The rear wheel housing shall be constructed of painted stainless steel and shall incorporate a polished

stainless steel fenderette. The circular interliner and no rust fenders prevent rust pockets from occurring and allow for ease in cleaning and maintenance.

BODY DECKING:

The area in front of the hose bed shall be decked with .190 polished aluminum treadplate.

HOSE MAT:

The hose mat, shall be of a slatted design to provide proper drainage of hose bed. The flooring shall be constructed of 5052 aluminum, formed with double flanges, each separated with polypropylene spacers.

TAILSTEP:

The tailstep shall be constructed of .190 thick 3003-h14 aluminum treadplate. The tailstep shall be a bolt-on tailstep for ease of removal and repair. The aluminum treadplate meets NFPA standard 13-7.3: all exterior surfaces have a minimum slip resistance of .68.

REAR TOW EYE:

One (1) drop forged steel drawbar tow eye with a 2½" I.D. eye and 1½" O.D. shank shall be mounted between the chassis frame rails. It shall be located behind a hinged treadplate access door in the rear compartment.

DUAL BOTTLE AIR BOTTLE COMPARTMENT(S):

Two (2) air bottle compartment(s) shall be incorporated into the apparatus wheel well assemblies. Each compartment shall have the capacity to store two (2) bottles. The bottles shall be accessed through a hinged stainless steel door design with single point latch.

LOCATION: One (1) each side

HOSE BED:

The hose bed shall be located over the booster tank, and must be accessible from the tail step and from its open top. The hose bed compartment shall have a minimum capacity of 55 cu. ft. and a minimum width of 70".

The hosebed shall have the capacity to carry the following hose:

HOSE BED DIVIDER:

One (1) divider shall be located in the hose bed. It shall be constructed of 3/16" aluminum plate. The divider shall be designed for future adjustability with locking blocks in aluminum channels at the front and the rear of the hose bed.

HOSE BED RETENTION SYSTEM:

One (1) full width wind dam shall be installed in the front area of the apparatus hose bed. The wind dam shall be manufactured of aluminum treadplate material. This design shall allow the air pressure to retain the hose in the hose bed.

Two (2) full width straps shall be installed one (1) at rear and one (1) at the midship area of the hose bed to retain the hose.

COMPARTMENTATION:

COMPARTMENT DESIGN:

The compartmentation shall be fabricated 12 gauge 304 stainless steel. The compartmentation is designed to be an intricate part of the body and subframe for maximum compartment support. The compartment tops shall be fabricated of aluminum treadplate. This treadplate shall be formed over each compartment top to act as drip protection over each compartment opening. The compartment flooring will be sweep out design. The front and rear face of the compartments shall be painted smooth stainless steel. There shall be NO EXCEPTIONS to the thickness of the stainless steel.

RIGHT SIDE BODY SHALL BE AS FOLLOWS:

R1

A roll-up door compartment assembly with a door opening of 40" wide x 58" high x 12" deep in the

upper area and 26" deep in the lower area shall be incorporated on the apparatus right side ahead of the rear wheels.

R2

One (1) compartment with a roll-up door shall be located above the wheel well on the right side. It shall have a door opening of 53" wide x 27" high x 12" deep.

R3

A roll-up door compartment assembly with a door opening of 41" wide x 58" high x 12" deep in the upper area and 26" deep in the lower area shall be incorporated on the apparatus right side behind the rear wheels.

LEFT SIDE BODY SHALL BE AS FOLLOWS:

L1

A roll-up door compartment assembly with a door opening of 40" wide x 58" high x 12" deep in the upper area and 26" deep in the lower area shall be incorporated on the apparatus left side ahead of the rear wheels.

L2

One (1) compartment with a roll-up door shall be located above the wheel well on the left side. It shall have a door opening of 53" wide x 27" high x 12" deep.

L3

A roll-up door compartment assembly with a door opening of 41" wide x 58" high x 12" deep in the upper area and 26" deep in the lower area shall be incorporated on the apparatus left side behind the rear wheels.

REAR COMPARTMENT:

A roll-up door compartment assembly with a door opening of 35" wide x 46" high x 29" deep shall be located at the rear of the apparatus.

COMPARTMENT LAYOUT:

The compartment interiors shall be as follows:

L1:

Unistrut Tracking

L2:

Unistrut Tracking

L3:

Unistrut Tracking

R1:

Unistrut Tracking

R2:

Unistrut Tracking

R3:

Unistrut Tracking

REAR:

Unistrut Tracking

NON-PAINTED ROLL-UP DOORS:

The designated compartments shall have Robinson Roll-up Shutter Doors with a satin finish. The doors shall be made of an anodized aluminum slat incorporating an exclusive seal that prohibits water intrusion, absorbs shock, eliminates clatter, and provides quiet, vibration-free performance.

ROM Standard Sill plates shall be installed at the bottom of each roll-up door opening. No Exceptions.

COMPARTMENT VENTS:

One (1) interior vent shall be installed in each compartment. The vent shall be constructed of stainless steel and shall incorporate four (4) 5" x ¾" louvers.

COMPARTMENT LIGHTS - KRYSTAL-LITE:

Each compartment shall incorporate LED Krystal-Lite tube lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening. The lights shall illuminate automatically when the door is opened. The lighting shall meet the requirements of NFPA 13.10.5

TRANSVERSE OPENING FOR THE REAR COMPARTMENT:

The side compartments behind the wheel shall be made transverse or interconnecting with the rear compartment. This transverse compartment will be full body width and must be accessible from the left side, right side or the rear compartment area.

RUB RAILS:

Bolt on aluminum rub rails shall be installed, below the compartment doors. Said rub rails will be fabricated of a polished "C" channel aluminum, mounted to the body surface utilizing 1" plastic spacers. The channel designed rub rail shall incorporate a highly reflective red and white reflective stripe to aid in apparatus protection.

TURTLE TILE ON FLOOR:

The floor of each compartment shall be covered with black Turtle Tile. The door openings shall be finished with Turtle Tile edging.

UNISTRUT IN COMPARTMENT:

Seven (7) compartment(s) shall incorporate unitstrut tracking installed for the adjustable shelving. The tracking will allow the shelving to be adjustable to height with eight (8) bolt lock. The tracking shall be installed from the floor of the compartment to approximately 4" below the ceiling of the compartment, allowing full height adjustability.

TANK:

BOOSTER TANK:

The tank shall have a capacity of 1000 US gallons complete with a lifetime warranty. The tank manufacturer shall mark the tank and furnish notice that indicates proof of warranty. The purpose of the markings and notice is to inform department personnel who store, stock, or use the tank that the unit is under warranty. Markings may be brief but should include a short statement that a warranty exists, the

substance of the warranty, its duration, and who to notify if the tank is found to be defective.

The Poly Tank shall be constructed of ½" thick PT2E polypropylene sheet stock. This material shall be non- corrosive stress relieved thermo-plastic and U.V. stabilized for maximum protection.

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

FILL TOWER AND COVER

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of ½" PT2E polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The tower will be located in the left front corner of the tank. The tower will have a ¼" thick removable polypropylene screen and a PT2E polypropylene hinged type cover. Inside the fill tower, approximately 4" down from the top, shall be fastened a combination vent overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of 4" that is designed to run through the tank and shall be piped behind the rear wheels.

The tank cover is constructed of ½" thick PT2E polypropylene and UV stabilized, to incorporate a multi three-piece design which allows for individual removal and inspection if necessary. The tank cover will be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions for maximum integrity. Each one of the three covers will have hold-downs consisting of 2" polypropylene dowels spaced a maximum of 30" apart. These dowels will extend through the covers and be welded to the transverse partitions. This will assist in keeping the cover rigid under fast filling conditions. A minimum of two (2) lifting dowels shall be drilled and tapped ½" x 13" to accommodate the lifting eyes.

SUMP

There will be one (1) sump standard per tank. The sump shall be constructed of ½" PT2E polypropylene and be located in the left front quarter of the tank. The sump will have a minimum 3" NPT threaded outlet on the bottom for a drain plug. This shall be used as a combination cleanout and drain. All tanks shall have an anti-swirl plate located approximately 2" above the sump.

OUTLETS

There will be two (2) standard tank outlets: one for the tank to pump suction line which will be a minimum of a 3" NPT coupling and one for a tank fill line which will be a minimum of a 2" NPT coupling. All tank fill couplings will be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1000 GPM. All auxiliary outlets and inlets must meet all NFPA guidelines in effect at the time of manufacture.

MOUNTING

The Poly Tank shall rest on the body cross members with an unsupported area not to exceed 530 sq. inches on tanks up to 40" in height. On tanks over 40" in height, an unsupported area of not more than 400 sq. inches must be maintained. All tanks shall be isolated from the cross members through the use of hard rubber strips with, a minimum thickness and width dimension of .250 x 2" and a minimum Rockwell hardness of 60 durometer. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both front and rear as well as side to side to prevent the tank from shifting during vehicle operation. A picture frame type cradle mount shall be utilized with a minimum of 2" x 2" x .250 structural material.

Although the tank is designed on the free-floating suspension principle, it shall be required that the tank have hold down restraints half way between the front and the rear of the tank. These restraints shall be made of 3" x 3" x ¼" angle approximately 6" long. The restraints shall be mounted to the side walls of the hose bed and extend down so that they rest approximately ½" above the top of the tank. The tank shall be completely removable without disturbing or dismantling the apparatus structure.

Upon final apparatus delivery, proper evidence and certifications shall be presented indicating the tank has the capacity of flow to the pump 80% of its rated capacity at a flow rate of 1000 GPM.

DUMP PAD

A dump opening shall be installed in the booster tank for the future installation of a dump in the rear compartment.

WHELEN LED STRIP-LITE TANK GAUGE:

The apparatus shall be equipped with surface mounted LED strip-lite tank status lights. The strips will contain four color LEDs, green, blue, amber and red, and measure 1" wide x 11½" high x 1 3/8" thick. Three strips will be located on the apparatus; one (1) each side of the pump module, and one (1) at the rear.

In addition to the LED strip-lite display, a Class 1 Intelli-Tank level gauge will be located on the pump operator's panel.

TANK FILL - 2½":

One (1) 2½" tank fill shall be located on the apparatus at the rear. Each tank fill shall be operated from its location. Each shall include a 2½" quarter-turn ball valve, and a 2½" NST female swivel with a sweep elbow of at least 30 degrees and a chrome plug. Assembly shall also include a ¾" quarter turn line drain.

12 VOLT ELECTRICAL:

ELECTRICAL WARRANTY:

Alexis Fire Equipment Co., Inc. warrants each new piece of Alexis fire and rescue apparatus to be free from defects in material and workmanship under normal use and service. Our obligation under this warranty is limited to repairing or replacing, as the company may elect, any part or parts thereof which shall be returned to us with transportation charges prepaid, and as to which examination shall disclose to the companys satisfaction to have been defective, provided that such part, or parts shall be returned to us within three (3) years or 30,000 miles after delivery of such vehicle. Such defective part or parts will be repaired or replaced free of charge and without charge for installation to the original purchaser.

Items specifically covered are:

- Electrical harnesses and harness installation
- Printed circuit board
- Switches, circuit breakers and relays

Items excluded are:

- Chassis electrical systems and components installed by chassis manufacturer
- Separately manufactured items installed by Alexis Fire Equipment including, but not limited to; batteries, sirens, battery chargers, inverters, lightbars and similar equipment. (These are covered by warranties supplied by the manufacturer of the components).
- Periodic tightening and cleaning of connection terminals as this is considered routine maintenance
- Normal wear, abuse, accident, negligence or un-approved alteration of original parts.

Should repairs become necessary under the terms of this warranty, the extent of that repair shall be determined solely by Alexis Fire Equipment and shall be performed solely by Alexis Fire Equipment or a repair facility designated by Alexis. The expense of any transportation to or from such repair facility shall be that of the purchaser and is not an item covered by this warranty.

Alexis Fire Equipment reserves the unrestricted right at any time to make changes in design of and/or

improvements on its products without thereby imposing any obligation on itself to make corresponding changes or improvements in or on its products theretofore manufactured.

12 VOLT ELECTRICAL SYSTEM:

Our electrical system is engineered to provide many years of dependable, trouble free service.

The 12 volt apparatus wiring shall be completely independent of the chassis electrical system. The system shall incorporate a state-of-the-art electrical distribution center. The center shall include a printed circuit board, automatic reset circuit breakers, and switching relays.

The printed circuit boards are laminated on both sides with reinforced epoxy. All PC boards are fully computer tested, and modern production processes guarantee long-term reliability in the most rigorous environments. The boards handle the numerous switching functions without the need for excess wiring. Switching relay and circuit breaker access/service is made quick and easy, due to the PC design.

The system can be expanded by adding an additional PC board and required components to meet desired specifications.

The weather tight modular service center shall be placed in a water-tight compartment in the apparatus body. The service center housing shall be manufactured of aluminum and shall incorporate an access door.

Wiring harnesses shall be custom made for each truck. Each harness shall be encased in a split barrel, nylon type loom which will be moisture resistant and flame resistant to a minimum of 280º F. Loop outs shall be made at the harness factory utilizing sealed sonic weld technology instead of open-ended butt splicing. The harnesses shall feature Deutsch heavy duty all metal connectors.

Unlike terminal strips, binding post and other open-wiring systems, the Deutsch HD series is a completely sealed unit. The elimination of open wiring systems does away with contamination from moisture, dust, lubricating oils, road salt, and other environmental hazards encountered in heavy duty use. The connector shall provide a multiple keying system that positively prevents mis-mating and makes plug/receptacle coupling quick and easy. The modular harness system will allow for quick and efficient complete body transfer if needed.

An independent switching station shall be centrally located in the apparatus cab. The switches shall be of a rocker type illuminating design. Each switch shall be color coded , and include a description indicating its intended use. Each switch shall be removable for service and replacement. Each switch shall be rated at 10 amp at 250 volts AC and activate switching relays requiring no more than .15 amps at 12 volts.

All electrical circuit feeder wiring supplied and installed by the apparatus manufacturer shall be stranded copper alloy conductors of a gauge rated to carry 125% of the maximum current for which the circuit if protected. Insulation shall be in accordance with SAE J1128, low tension primary cable, type SXL or GXL, and wired to SAE J1292, automobile, truck, truck-tractor, trailer and motor coach wiring, for such loading at the potential employed. Voltage drops in all wiring from the power source to the using device shall not exceed 10%. Overall covering of conductors shall be 280º F (143º C) minimum flame retardant, moisture resistant loom or braid. All connections shall be made with lugs or terminals mechanically secured to the conductors. Wiring shall be thoroughly secured in place and suitably protected against heat, oil, and physical damage. Wiring shall be color coded and printed with a circuit function code over each conductor's entire length.

Circuits shall be provided with properly rated low voltage over-current protective devices. Such devices shall be readily accessible and protected against excessive heat, physical damage and water spray, switches relays, terminals, and connectors shall have a direct current rating of 125% of maximum current for which the circuit is protected.

Wiring Diagrams: Two (2) destination effective wiring diagrams shall be furnished with the apparatus. The wiring diagrams shall incorporate notations to assist an individual with limited electrical experience in the service of the apparatus electrical system.

NOTE: All wiring and components shall meet or exceed current N.F.P.A. codes.

ELECTRICAL SYSTEM PERFORMANCE TESTS:

The apparatus low voltage electrical system shall be tested and certified per the current NFPA standard. The certification shall be delivered to the purchaser with the apparatus.

DOCUMENTATION:

At the time of delivery, the manufacturer shall provide the following:

(a) Documentation of the electrical system performance tests;
(b) A written load analysis, including:

1. The nameplate rating of the alternator;
2. The alternator rating;
3. Each component load comprising the minimum continuous load;
4. Additional loads that, when added to the minimum continuous load, determine the total connected load;
5. Each individual intermittent load.

RADIO:

One (1) radio(s) shall be installed by the customer after receipt of the completed apparatus.

OPTICAL WARNING SYSTEM:

The optical warning system on the fire apparatus shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. The other mode shall signal that the apparatus is stopped and is blocking the right-of-way.

EMERGENCY WARNING LIGHTS:

For the purpose of defining and measuring the required optical performance, the apparatus shall be divided into four warning zones. The four zones shall be determined by drawing lines through the geometric center of the apparatus at 45º to a line lengthwise of the apparatus through the geometric center. The four zones shall be designated A, B, C, and D in a clockwise direction with zone A to the front of the apparatus. Each zone shall have an upper and lower warning level.

Effective coverage of all four zones, both upper and lower, as required by the latest NFPA Edition shall be provided.

LIGHTBAR:

The lightbar shall be supplied on the chassis by the chassis manufacturer.

FRONT WARNING LIGHTS:

The front warning lights shall be supplied on the chassis by the chassis manufacturer.

WARNING LIGHTS (SIDE):

One (1) Whelen Model 60R02FRD red Super Linear LED light shall be mounted on the right (officer's) side of the vehicle. The light shall be placed inside chrome a flange. The light shall be switched from the in cab switch panel. The light fills the requirements of Zone B Lower.

One (1) Whelen Model 60R02FRD red Super Linear LED lights shall be mounted on the left (driver's) side of the vehicle. The light shall be placed inside a chrome flange. The light shall be switched from the in cab switch panel. The light fills the requirements of Zone D Lower.

WARNING LIGHTS (REAR):

One (1) Whelen Model RB6PAP amber rotating beacon and one (1) Whelen Model RB6PRP red rotating beacon shall be mounted on the upper rear of the vehicle, one (1) each side on the compartment tops. These beacons shall be switched from the in cab switch panel. These lights fill the requirements of Zone C Upper, Zone B Upper, and Zone D Upper.

WARNING LIGHTS (REAR):

Two (2) Whelen Model 60R02FRD Red Super Linear LED lights shall be mounted on the lower rear area of the vehicle. These lights shall be switched from the in cab switch panel. These lights fill the requirements of Zone C Lower.

REAR DRIVING SIGNALS- WHELEN:

The rear driving signals shall consist of six (6) lights; three (3) on each side of the apparatus. The signals shall be Whelen LED Series 60R00BRD: Red-Brake/Tail, Whelen Series LED60A00TAD: Amber Arrow-Turn. The back up light shall be Whelen **Halogen** Series 60J000CD. They shall be surface mounted in a polished aluminum housing - Whelen Model CAST4V.

WHELEN TURN SIGNALS-MIDSHIP:

One (1) Whelen LED amber midship turn light - #50A00MAD shall be mounted on each side of the apparatus ahead of the rear wheels within a rubber grommet - #5grommet.

ICC LIGHTING:

LED Clearance lights shall be installed on the apparatus. They shall be hermetically sealed cartridge lights for ease of service and durability.

PUMP COMPARTMENT LIGHT:

One (1) 5" 12-volt light shall be installed in the pump compartment. The light shall be switched with pump panel lights.

COURTESY LIGHTS (UNDER CARRIAGE LIGHTING):

A 5" 12-volt light shall be located under each area designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level. Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be provided on the Spartan chassis. All other ground area lighting shall be switched with the parking brake.

Two (2) under the bumper

Two (2) under the tail board

One (1) each side at the walkway step area

COURTESY LIGHTS:

Two (2) Weldon Tear Drop courtesy lights shall illuminate the rear tailboard. They shall be switched with the parking brake.

SCENE LIGHTS:

Two (2) Weldon Model 3812-0000-33 large scene light(s) with bezel, shall be mounted at the specified location(s). Each scene light shall be switched from the cab console.

LOCATION: Apparatus rear above the rear roll-up door

12 VOLT TELESCOPIC NIGHT BREAKER HID LIGHT:

Two (2)Akron Brass, Extenda-Lite Night Breaker HID type Model E-5150-PS-SM with a Push -Up style telescoping pole and side mounting brackets shall be provided. All mounting brackets and pole fittings shall be heavy duty, cast aluminum and powder painted white to match the light head. Each telescoping pole shall be equipped with a 150 watt Night Breaker light head and Metal Halide lamp. The lamp shall operate at 12 volts DC and draw no more than 12.5 amperes and have an output of 13,000 lumens. Lights shall be UL listed. The lamp shall be replaceable from the front by loosening four lens screws. Each Night Breaker light head shall be no larger than 8.5” x 6.5” x 7” and equipped with a Specular Hammertone reflector. The light head shall tilt up and down with a heavy duty handle and shall be mounted on to the top of the telescoping pole with a ¾” housing arm assembly. All threaded holes in the light head shall use stainless steel thread inserts and stainless steel hardware. The inside pole shall be sixty inches (60”) long and the outside pole shall be eleven and one half inches (11-1/2”) in length as standard or lengths can be adjusted by the manufacturer as required to fit a specified mounting location. All inside and outside poles shall be made only from drawn aluminum tubes. Each pole shall be deep etched, wire brushed and clear anodized to ensure a corrosion free appearance and lasting durability. The Pull-Up telescoping pole shall rotate 360 degrees left or right. The Push-Up Night Breaker shall have a 5 year warranty. Each light shall be switched from the light head.

LOCATION: One (1) each side of the pump module

HOSEBED ILLUMINATION:

There shall be one (1) Weldon Model 3812-0000-33 scene light located at the front of the hosebed. The scene light shall be mounted to an aluminum bracket located in the center of the front bulkhead. The scene light shall be switched from the pump operator's panel.

BRACKETING:

FOLDING STEP(S):

Four (4) large folding step(s) shall be furnished on the apparatus. Each step shall be mounted in the specified location.

LOCATION: Two each side front compartment area

FOLDING STEPS:

Six (6) large folding steps shall be furnished on the apparatus.

Location: Three (3) each side at the rear tail step area.

GRAB HANDLES:

Two (2) 1¼" o.d. 8½" knurled bright stainless steel grab rail(s) shall be provided as grab handles.

LOCATION: One (1) each side at the upper rear of apparatus to access the hose bed area

GRAB HANDLES:

Two (2) 1¼" o.d. 18" knurled bright stainless steel grab rail(s) shall be provided as grab handles.

LOCATION: One (1) each side at the top front of the compartment area

GRAB HANDLES:

Two (2) 58" knurled bright stainless steel 1¼" O.D. grab rails shall be installed on the rear radius of the body panels.

GRAB HANDLE:

One (1) 58" knurled bright stainless steel 1¼" O.D. grab rail shall be installed horizontally below the apparatus hose bed.

HARD SUCTION HOSE STORAGE- LEFT SIDE:

One (1) hard suction hose storage compartment shall be designed into the left upper compartment area. The suction hose shall be accessible from the rear of the apparatus through a drop down door with a single point latch. The suction hose compartment shall be an integral part of the compartment area.

HARD SUCTION HOSE STORAGE- RIGHT SIDE:

One (1) hard suction hose storage compartment shall be designed into the right upper area. The suction hose shall be accessible from the rear of the apparatus through a drop down door with a single point latch.

LADDER STORAGE:

The ladders shall be stored in a compartment located under the apparatus hose bed, between the rear wall of the right side compartments and the sidewall of the tank. The ladders shall be stored on "beam" edge and the compartment shall incorporate individual poly slides for ease of removal of the ladders. The ladders shall be accessible from the rear of the apparatus through a vertically hinged aluminum treadplate door with single point latch.

The ladder storage shall have the capacity to contain the following:

One (1) 24' 2-section ladder
One (1) 14' Roof ladder with hooks
One (1) 10' attic ladder
Two (2) Pike Pole tubes

ATTIC LADDER BRACKET:

One (1) attic ladder bracket shall be included within the apparatus. It shall have the capacity to carry an attic ladder. Abrasion pads shall be installed to prevent body finish damage.

LOCATION: Ladder compartment

PIKE POLE TUBE:

Two (2) pike pole tube(s) shall be installed on the apparatus.

LOCATION: Ladder compartment

WHEEL CHOCKS:

One (1) pair of Ziamatic #2-SAC-44 folding wheel chocks shall be provided with the apparatus. The chocks shall be mounted in a location that is easily accessible.

FINISH:

APPARATUS BODY FINISH:

The final finish of the apparatus shall conform to fire apparatus standards, exhibiting excellent gloss durability and color retention properties.

PREPARATION:

Since the removal of all contaminates and oxidation is essential to the final effect of a finish system, the apparatus shall be pre-cleaned with wax and grease remover and towel dried prior to evaporation.

A 10-step standard body preparation shall be completed.

When the substrate is prepared, the entire body shall be cleaned by washing again with wax and grease remover and towel dried.

PRETREAT AND PRIMERS:

The pretreat and primer applications shall be made in two (2) independent steps. A application of a combined pretreat/primer product will not be allowed as a substitute.

The prepared substrate shall be pretreated with Acid Curing 2 Component Transparent Primer. This pretreat shall be designed to provide corrosion protection and to create an adhesive bond between the substrate and the surface applications.

To enhance adhesion and top coat gloss, a 2 component epoxy primer shall be applied.

All the primed surfaces shall be sanded smooth, thus removing all texture and surface imperfections and creating a finish base that will meet the rigid requirements of the fire and emergency services.

TOP COATS:

Two (2) coats (0.5 - 2.0 mils) urethane base coat shall be applied in a professional manner. After the base coats have cured properly, two (2) coats of a high solids urethane clear coat shall be applied.

All surface imperfections shall be removed by buffing and polishing.

The body rails shall be a DA brushed aluminum finish.

PAINT WARRANTY:

The apparatus shall be covered by a seven- (7) year paint warranty. Following are the covered defects and exclusions.

Covered Defects shall include only the following list of defects:

- Peeling or delaminating of the topcoat and/or other layers of paint.
- Cracking or checking.
- Loss of gloss caused by cracking, checking or hazing.
- Any paint failure caused by defective PPG Fleet finishes, which are covered by this guarantee.

Defects resulting from the following conditions are excluded from the Warranty:

- Paint deteriorating caused by blisters or other film degradation due to rust or corrosion originating from the substrate
- Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy-duty pressure washing, or aggressive mechanical wash systems
- Paint deteriorating caused by abuse, scratches, chips, gloss reduction, accidents, acid rain, chemical fallout or acts of nature
- Claims presented without proper Warranty documentation
- Failure on finishes performed by Non-PPG Commercial Certified Technicians
- Failures on finishes due to inadequate film builds
- Failures due to improper cleaning or surface preparation or failure to follow the product use instructions
- Custom finishes, exotic finishes or any finish other than standard finish procedures.
- Failures resulting from product misuse or abuse.
- Repairs done over previously refinished areas unless stripped to bare metal or appropriate substrate.

The interior of the compartments shall be natural finish stainless steel

APPARATUS COLOR:

The color of the apparatus shall be as follows:

COLOR: Red to Match the Lower Chassis Cab Color

CODE: PPG FBCH 71663

CAB LETTERING:

Gold vinyl leaf lettering shall be applied to the chassis cab door, one (1) each side. Each letter shall be 2½" to 3½" high, hand applied, blocked and shaded in black.

Gold vinyl leaf letters/numbers shall be applied to the chassis cab fender area, one (1) each side. Each letter/number shall be 2½" to 3½" high, hand applied, blocked and shaded in black.

LAMINATION WARRANTY:

The apparatus shall be covered by a three (3) year warranty against defects in material and workmanship with the graphics process

REFLECTIVE STRIPING:

The finished apparatus shall be striped white with reflective Scotchlite striping. There shall be a 6" stripe and two (2) 1" stripes.

CHEVRON STRIPING:

The rear of the apparatus shall be striped with retro-reflective striping. The striping shall be applied in a chevron pattern sloping downward and away from the centerline of the apparatus at a 45º angle. The striping shall be single color alternating between red and yellow.

The striping shall be applied in the following locations: vertical surfaces between the body panels at the rear, from the tailstep walkway to the hose bed

Striping in a Chevron pattern shall also be installed on the rear compartment door.

EQUIPMENT:

One (1) Duo-Safety #10-585A aluminum folding 10' attic ladder(s).

One (1) Duo-Safety 14-775A, 14' Roof Ladder(s) with hooks.

One (1) Duo-Safety #24-900A, 24' 2 Section ground ladder(s).

Two (2) 10' Length(s) of 6" diameter Firequip maxi flex hard suction, clear with burgundy ribs. Coupled 6" LHF x 6" RLM. (Not rated for hydrants).

NFPA EQUIPMENT CLARIFICATION:

Any equipment specified in the "Minor Equipment" section (e.g. hose, nozzles, adapters, AED, traffic cones, traffic safety vests, etc.) of NFPA 1901for each apparatus classification (see below) which is not specified in this proposal shall be considered to be customer supplied.

Apparatus Type	NFPA Section
Pumper	5.8
Initial Attack	6.7
Mobile Water Supply	7.7
Aerial	8.8
Quint	9.8
Special Service	10.5
Mobile Foam	11.9