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

Alexis Fire Equipment Company
Alexis, IL

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 2000 Gallon Pumper Tanker

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.

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

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 ___ 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, RK Aerials, 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:

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. At that time, the purchaser shall present to the manufacturer's agent a certificate of verification, showing liability, comprehensive, and collision insurance coverage.

A qualified representative shall remain in the department a sufficient length of time to demonstrate the operation, care and maintenance of the equipment to one (1) shift of personnel.

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 two (2) 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 4.15.3, the top speed of the vehicle shall not exceed 60 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 model, 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.

25. 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.

26. 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.

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

28. 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'-6".

OVERALL LENGTH:

The OAL of the unit shall not exceed 29'.

CHASSIS MODIFICATIONS:

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.

WHEEL DRESS FULL WHEEL LINERS:

The front and rear wheels shall be dressed with polished wheel liners, hub covers and lug nut covers.

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.

AIR LIMITER:

A limiter 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.

PUMP AND PIPING:

PTO Pump for Tanker

Pump Module Under Tank Tanker 1250GPM

DARLEY PSM 1250 SPLIT SHAFT PUMPING SYSTEM:

MANUFACTURER: DARLEY
MODEL: PSM 1250
CAPACITY:1250 gpm at 150 psi

A Darley model PSM 1250 GPM single stage split-drive shaft driven fire pump shall be provided and installed.

The pump shall be midship mounted and designed to operate through an integral transmission, including a means for power selectivity to the driving axle or to the pump. The pump shall be driven by a driveline from the chassis transmission. The engine, transmission and driveline components shall provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance.

The pump shall contain a cored heating jacket feature that, if selected, can be connected into the vehicle antifreeze system to protect the pump from freezing in cold climates, and to help reject engine heat from engine coolant, providing longer life for the engine.

Pump Shaft

The pump shaft shall be precision ground stainless steel with long wearing Chromium Oxide hard coating under the packing glands with a hardness level of #RC72. The shaft shall be splined to receive broached impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by engine, as well as ease of maintenance and repair.

The bearings provided shall be heavy duty, deep groove, radial type ball bearings. Sleeve bearings on any portion of the pump or transmission shall be prohibited due to wear, deflection, and alignment concerns. The bearings shall be protected at all openings from road dirt and water splash with oil seals and water slingers.

Impeller

The impeller shall be a high strength bronze alloy of mixed flow design, splined to the pump shaft for precision fit, durability, and ease of maintenance. Impeller shall be vacuum cast designed for maximum lift and highest capacity. The seal rings shall be renewable, double labyrinth, wrap around bronze type.

Impeller shaft oil seals shall be constructed to be free from steel components except for the internal lip spring. The impeller shaft oil seals shall carry a lifetime warranty against damage from corrosion from water and other fire-fighting fluids.

Pump Transmission

The transmission case shall be heavy duty cast iron. A magnetic drain plug shall be provided. Transmission case shall include a dip stick for checking oil level. Transmission case interior shall be powder coated to reduce oil contamination. Transmission case shall be equipped with a removable plate for quick inspection of gears, shafts, and bearings inside the transmission.

The pump drive shaft shall be precision ground, heat treated alloy steel, with a minimum 2-1/2" x 10" spline. The net through-torque rating of the gearbox shall exceed 19,000 foot pounds. Gears shall be helical design, and shall be precision ground for quiet operation and extended life. The gears shall be manufactured from alloy steel and carburized for surface hardness and strength.

The pump clutch gear shall be a heat treated alloy-steel splined spur gear to engage either the pump drive gear or the truck drive shaft gear, and shall have bullet-nosed teeth to reduce the possibility of a butt-tooth condition. The pump clutch gear shall be separate from the main drive gear in order to maintain the greatest precision for driving the pump gear train. The pump transmission shall require no further lubrication beyond that provided by the intrinsic action of the gears, to reduce the likelihood of failure due to loss of auxiliary lubrication.

Driveline Installation

The chassis drivelines shall be sized for intended application and torque requirements. The installation shall comply with driveline manufacturer's guidelines.

Manuals

Two (2) manuals covering the fire pump transmission and selected options of the fire pump shall be provided with the apparatus.

PRIMING PUMP:

The priming pump shall be a Trident Emergency Products compressed air-powered, high efficiency, multi-stage, venturi based AirPrime™ System. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump. The priming system shall have a five year warranty.

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

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.

PIPING:

The piping will be stainless steel material througout the waterway system. The suction waterway shall be 6" 304 stainless steel material. The suction waterways shall be designed to flow a minimum of 17% in excess of the rated capacity from draft. The suction piping shall incorporate a 4" suction inlet to allow for full flow from the tank valve assembly. The suction piping shall be adapted from 6" TIPT to NST with a chrome adapter. Each suction arm shall incorporate a Class 1 long handle cap. The suction system shall be designed with 6" victaulic couplings to allow ease of access for maintenance or removal of the pumping system.

The discharge system shall incorporate a 4" x 6" stainless steel distribution system. The manifold shall be fed from the 4" piping system. The discharge system shall incorporate a 4" victaulic system to allow ease of access for maintenance or removal of the pumping system. Each discharge shall be fed from above the manifold system.

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.

MECHANICAL SEAL:

The pump shall be furnished with a Darley maintenance free mechanical seal. The mechanical seal shall be a non-contacting, non-wearing dual seal design. Seal shall be a Silicon Carbide Mechanical seals with welded springs. The stationary face of mechanical seals shall be made from Silicon Carbide, and be extremely hard and of a heat dissipative material, which resists wear and dry running damage much better than conventional Ni-resist and Tungsten Carbide materials

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.

INTAKE PRESSURE RELIEF VALVE

One (1) Task Force Tips model #A1860 pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with easy to read 90, 125, 150, 200, 250, 300 psi settings and an "OFF" position. Pressure adjustment can be made utilizing a ¼" hex key, 9/16" socket or 14mm socket. For corrosion resistance the cast aluminum valve shall be hardcoat anodized with a powder coat interior and exterior finish. The valve shall be configured for either a Waterous or Hale pump, and have a 2-1/2" male NH threaded discharge outlet and a "DO NOT CAP" label near discharge outlet. The valve shall meet NFPA 1901 requirements for pump inlet relief valve. The unit shall be covered by a five-year warranty.

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

INTERMEDIATE PUMP MODULE:

A free standing pump module shall be located between the chassis cab and the tank of the apparatus. The tank shall project over the module assembly for better weight distribution and handling.

The pump module shall be a self-supported structure mounted to the frame separate from the cab and body. Pump module design beginning with a formed framework assemblies that are precision manufactured from corrosion free heavy 7 gauge and 14 gauge stainless steel forms. This framework mounts to the truck frame through a mounting design complemented with four (4) VIBRA mount elastomer cushions. The result shall be a mounting system that allows for the twisting movement of the truck frame without undue stress loading of the pump module.

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

An automotive rubber seal shall be adhered to each panel to reduce vibration that may occur during pump operation or road application.

Each suction/dischage panel shall be secured with latches at the top and bottom of the opening on each side.

The top left operator's panel shall be hinged for access to the individual gauges and the electrical components. No exceptions.

Once the module is designed, the valve control placements on a control module shall result in a neat and orderly layout. Open the access door on a side control module and peer inside. The horizontal control rods appear neat and orderly.

RIGHT SIDE PANEL:

There shall be a suction/discharge panel located on the right side of the pump module. The panel shall be hinged for pump, valve, and piping access. No exceptions.

PUMP OPERATOR'S PANEL:

The pump operator's panel shall include the following:

PRESSURE GOVERNOR and MONITORING DISPLAY

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

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

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. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:
- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only).

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

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

The pressure governor and monitoring pressure display shall be programmed at installation for a specific engine.

MASTER GAUGES:

One (1) 4½" compound gauge wth a range of 30-0-600 PSI.

One (1) 4½" pressure gauge with a range of 0-600 PSI

WATER TANK INDICATOR

One (1) Fire Research TankVision model WLA200-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall place on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

The gauge shall be located at the pump operator’s panel.

LINE READING GUAGES:

One (1) line reading gauge supplied for each discharge. The gauge shall have a 2½ diameter face with a graduated output scale of 0-400 PSI with black print on a bright white background. The gauge shall be constructed with a Zytel housing, acrylic lens and polished stainless steel bezel. The Zytel nylon case shall be temperature compensated with an internal breathing diaphragm to permit a fully filled case and to allow for a rigid lens with a distortion free viewing area.

A 1/4" brass male NPT fitting shall be centrally located on the rear of the housing and feature the Kem-X socket and freeze protection system that isolates the gauge from contaminants. The gauge utilizes a phosphor bronze Bourdon tube filled with a freeze proof liquid isolated by a diaphragm. The gauge shall be filled with low temperature glycerin for an operating range of -40 to +150 degrees Fahrenheit, which prevents bouncing of the readout needle and provides for an accuracy rating of plus or minus 1% across the entire scale of the gauge.

COLOR CODED TAGS:

Color coded tags with chrome plated bezels shall be provided. Unless otherwise specified all tags shall be color coded to NFPA recommendations and shall be located at the control location, intake/discharge location, and at the drain port location.

TEST PORTS:

Vacuum and pressure test ports shall be provided on the pump operator's panel for connection of the pump test gauges.

RUNNING BOARDS

The running boards shall be constructed of open serrated grating material and shall be attached to the outriggers on the pump module. The open design prevents accumulation of moisture and debris. The front and side faces of each running board covered with polished aluminum treadplate. The serrated grating material meets NFPA standard 13-7.3: all exterior surfaces have a minimum slip resistance of .68.

STAINLESS STEEL PUMP MODULE:

The area above the side discharge panels on each side shall be manufactured of 14 gauge brushed stainless steel material.

STAINLESS STEEL PUMP PANELS:

The pump operator's panel and discharge panels shall be manufactured of 12-gauge stainless steel and shall include a full width stainless steel light hood which shall have one (1) E10 Series LED light. Two (2) Eon E03 Series LED lights shall be provided on the lower area of the left side discharge panel.

The side discharge panel on the passenger side of the apparatus shall be manufactured of 12-gauge stainless steel and shall include a full width stainless steel light hood which shall have one (1) E10 Series LED light.

The lights activated by the pump panel light switch.

2 ½" DISCHARGE PIPING:

Two (2) 2 ½" discharge(s) shall be located on the left side of the apparatus. Each discharge valve shall be located behind the body panel and controlled from the side control pump operator's panel. Each dischargee 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.

Each above valve shall be manually controlled.

2 ½" DISCHARGE PIPING:

One (1) 2 ½" discharge(s) shall be located on the right side of the apparatus. Each discharge valve shall be located behind the body panel and shall be controlled from the side control pump operator's panel. Each 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.

Each above valve shall be manually controlled.

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 controlled from the side control pump operator's panel. A 2½" 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.

Each above valve shall be manually controlled.

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 from the pump operator's panel. The tank line shall incorporate a check valve in the line to meet NFPA 1901.

LINE DRAINS FOR DISCHARGES:

The drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

VENTED DISCHARGE CAPS:

Each discharge shall incorporate a vented cap designed to relieve stored pressure in the line when disconnected.

GATED SUCTION, LEFT SIDE:

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

Each above valve shall be manually controlled.

MATTYDALE PRECONNECT MODULE - (1) 1½" AND (1) 2½":

One (1) independent preconnect module shall be located directly behind the chassis cab, above the frame rails. The module shall be manufactured of stainless steel material, self supported, and shall incorporate two (2) deep cut single lay preconnect hose beds. The Mattydale preconnect shall be designed to allow the extension of hose to the left or right side of the apparatus body.

One (1) 1½" preconnect shall be provided in the module. The preconnect shall incorporate a 1½", Trident swivel adapted to 1½" fire hose thread. The waterway shall be 2" i.d. and include a 2" full flow quarter turn ball valve that is controlled from the operator's panel. The 1½" preconnect shall have the capacity to contain a minimum of 200 ft. of 1¾" hose with nozzle

One (1) 2½" preconnect shall be provided in the module. The preconnect shall incorporate a 2½, Trident swivel adapatd to 2½" fire hose thread The waterway shall be 3" i.d. and include a 2½" full flow quarter

turn ball valve that is controlled from the operator's panel. The 2½" preconnect shall have the capacity to contain a minimum of 150 ft. of 2½" hose.

One (1) deadlay hose bed shall be provided within the module for the storage of either 200' of 1¾" OR 150' of 2½" hose in a single lay.

Each above valve shall be manually controlled.

MATTYDALE PRECONNECT COVER - HYPALON:

The Mattydale preconnect area shall be covered with a fire and chemical resistant material. It is to be retained to the apparatus with a slotted track retainer across front and heavy duty across the rear.

The hypalon cover shall be red in color.

TANK FILL RECYCLE:

One (1) 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.

An Akron Brass Generation II Swing-Out™ Valve, shall be provided. The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve body shall be of universal design and accept multiple actuators. 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. The stainless steel ball shall have HydroMax™ technology. 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 devise. This valve shall be actuated using a manual handle. The handle shall be quickly adjustable to one of eight handle positions and require only 90° travel. 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 10 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.

Tanker Body - 2000 Gallon Tanker - Stainless Steel

BODY SUB FRAME – STAINLESS STEEL:

The body sub frame system shall be designed for the emergency service application. The sub frame shall be independent of the chassis frame and is to be constructed of heavy structural material to provide the maximum strength and body support necessary for units utilized in emergency service. The system not only is used for total support designed to carry the total load of the apparatus; the system also allows the unit to be a complete lift off transferable apparatus once completed.

The system is designed to carry the emergency apparatus on the chassis main frame in a European style method. This method allows the apparatus body to float independently from the chassis frame ahead of the rear wheels and shall be rigidly attached behind the rear axle area.

The sub frame system shall be isolated from the chassis frame with a custom full length rubber extrusion that totally locks onto each chassis frame rail. This system isolates the body from the frame while also acting as a cushion between the two units.

The sub frame system shall be manufactured completely of 304 stainless steel material. The stainless steel sub frame shall incorporate 1 x 3 flat 304 stainless steel which shall run the full length of each chassis frame rail from the back of the cab to the end of the frame.

K-Bracing shall be incorporated into the sytem for strength and compartment support. Each K-Brace shall consist of a 3 x 3 x 7 gauge 304 stainless steel tubing to continue the total sub frame support.

The tank cradle shall be incorporated within the sub frame system to allow for a lower vertical center of gravity and to allow the water load weight to be supported by the sub frame system. The tank cradle shall incorporate the heavy sub frame and 7 gauge 304 stainless steel channel placed in accordance with the poly tank manufacturer's recommendations. Each channel is covered with a custom extruded rubber channel to prevent the water tank from chaffing with the stainless steel sub frame.

It is important to note all welds on the sub frame system shall be welded in methods that are sanctioned by ASME and SAE standards as to allow complete structural integrity as stipulated and shall also follow the guidelines set forth by the Alexis Standards.

APPARATUS REAR PANEL:

The vertical surfaces at the rear, from the tailstep walkway to the top of the body, shall be manufactured of 14 gauge smooth stainless steel, in preparation for Chevron striping.

The rear of the tank shall remain poly material painted to match the body.

WHEEL HOUSING, PAINTED SMOOTH STAINLESS STEEL:

The rear wheel housing shall be constructed of painted 14 gauge stainless steel material. For ease of maintenance and repair, the wheel well area shall be of the bolted design.

WHEEL HOUSING TRIM:

The rear wheel housing shall incorporate a polished stainless steel fenderette.

WHEEL HOUSING INNER LINER:

The circular interliner shall be manufactured of 3/16" Tivar 1000 polymer material. The polymer

material is a chemical and corrosion resistant material, thereby preventing excess wear and corrosion from occurring due to wintertime road chemicals. The polymer material shall be held in place by the use of polymer retainers or bolts for ease of repair and access to the wheel well area.

TAILSTEP:

The tailstep shall be constructed of open serrated grating material, thereby preventing moisture and debris accumulation. The tailstep shall be supported by stainless steel gussets on each side of the body, above the tailstep. The rear and side faces of the tail step shall be polished aluminum treadplate. The serrated grating material meets NFPA standard 13-7.3: all exterior surfaces have a minimum slip resistance of .68.

REAR TOW EYES:

Two (2) ¾" thick steel tow eyes shall be securely fastened to the rear frame rails, one (1) on each side.

COMPARTMENTATION:

COMPARTMENT DESIGN:

The compartmentation shall be fabricated of bolted 14 gauge 304 stainless steel walls and 12 gauge 304 stainless steel floors. 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 the compartments shall be painted smooth stainless steel.

The specified lighting in each compartment shall be switched automatically with the doors. The lighting shall meet the requirements of NFPA 13.10.5

LEFT SIDE BODY IS AS FOLLOWS:

L1

A roll-up door compartment assembly with a door opening of 37" wide x 27" high x 26" deep shall be incorporated on the apparatus left side ahead of the rear wheels.

L2

A roll-up door compartment assembly with a door opening of 21" wide x 27" high x 26" deep shall be

incorporated on the apparatus left side behind the rear wheels.

RIGHT SIDE BODY IS AS FOLLOWS:

R1

A roll-up door compartment assembly with a door opening of 37" wide x 27" high x 26" deep shall be incorporated on the apparatus right side ahead of the rear wheels.

R2

A roll-up door compartment assembly with a door opening of 21" wide x 27" high x 26" deep shall be incorporated on the apparatus right side behind the rear wheels.

COMPARTMENT LAYOUT:

The compartment interiors shall be as follows:

L1:

L2:

R1:

R2:

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.

COMPARTMENT LIGHT:

One (1) 5" T41 Series LED light shall be installed in each apparatus compartment. The compartment lights shall be switched automatically with the doors. The lighting shall meet the requirements of NFPA 13.10.5

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 ¼" plastic spacers. The channel designed rub rail shall incorporate a highly reflective red and white reflective stripe to aid in apparatus protection.

TANK:

WET SIDE WATER TANK:

The tank shall have a minimum capacity of 2000 US gallons complete with a lifetime warranty. The tank shall be of a specified configuration, and so designed to be completely independent of the compartment and/or fender modules. When placed on the chassis, the tank shall meet or exceed all federal DOT regulations regarding weight distribution, axle loading, and horizontal and vertical center of gravity locations.

The tank manufacturer shall mark the tank with the manufacturers name, date of manufacture, and serial number 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.

TANK CONSTRUCTION:

The tank shall be constructed using a virgin polypropylene sheet with a minimum thickness of ½". This material shall be a high impact co-polymer (HIC), non- corrosive stress relieved thermo-plastic and U.V. stabilized for maximum protection.

This material shall be referred to in the rest of this specification as "HIC polypropylene".

All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. All swash partitions shall interlock and be welded to each other as well as to the walls of the tank.

Care will be taken not to scratch the outer shall of the tank as the tank sides will be partially exposed in the finished product. All exposed corners shall be finish routed to eliminate sharp corners and to give the tank a neat appearance.

The tank shall incorporate two mounting blocks welded into the floor. These blocks will be designed to restrain the tank in the sub-frame. See the "Tank Sub-frame" section of this specification.

FILL TOWER AND COVER:

The tank will have a manual fill tower with a 6" combination vent/overflow pipe. The fill tower will be constructed of HIC polypropylene and shall be large enough to provide filling by means of a conventional 2½" hose nozzle. The tower will be located near the center of the tank to minimize water surge during vehicle operation. The tower will have a removable polypropylene screen and a polypropylene hinged type cover. The vent/overflow pipe shall run through the tank, and exit through the floor of the tank behind the rear axle to maximize traction.

The tank cover shall be constructed of HIC polypropylene with a minimum thickness of ½". It shall be of a flush bi-directional locking, design which allows for individual removal and inspection if necessary. Each one of the covers will have hold-downs which extend through the covers and will assist in keeping the covers rigid under fast filling conditions. An adequate lifting provision shall be provided which is capable of suspending the empty water tank with a safety factor of at least 2:1. The lifting dowel thread configuration must withstand a torque input of 80 ft/lbs.

OUTLETS:

There will be a minimum of three (3) tank connections: one for the tank to pump suction line which will be a minimum 3" NPT coupling piped to the sump; one for a tank clean-out/drain which shall be a minimum 3" NPT coupling in the sump floor; and, one for a tank fill line which will be a minimum 2" NPT coupling. All tank fill couplings will be backed with flow deflectors to break up the stream of water entering the tank. All auxiliary outlets and inlets must meet the current NFPA recommended guidelines in effect at the time of manufacture.

SUMP:

There will be one (1) sump included with the tank which shall incorporate an anti-swirl device. The sump shall be constructed of HIC polypropylene and be located in the left front quarter of the tank.

MOUNTING:

A sub-frame weldment shall be provided to adequately support the tank, compartments and fender modules in their fully loaded and equipped condition. This sub-frame shall be constructed of aluminum structural channel. The design shall allow for proper interface between all body and fender modules as well as ample clearances for the tank. The design shall also consider cross member spacing as it relates to unsupported area under the tank, which shall not exceed 530 square inches. 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 the cross member with a minimum of ¼" thick 60 durometer rubber strips. Although the tank is designed on the free-floating principle, the sub-frame must incorporate provisions for capturing the tank both front and rear as well as side-to-side to prevent shifting during vehicle operation. This

shall be accomplished through the use of preformed stainless steel retainer brackets, one on each end of the tank bottom. These brackets shall encapsulate a cross member support as part of the sub-frame. The completed sub-frame shall be attached to the truck frame rails using a hard non-metallic isolator between the frame rail and the sub-frame. Final clamping shall be accomplished through the use of heat treated U-bolts.

HOSEBED:

There shall be a hosebed area constructed of HIC polypropylene on top of the tank consisting of two side walls and one front panel. There shall be a bulkead located behind the fill tower for a dunnage area. This hosebed shall be welded to the outside perimeter of the tank cover. Drain holes shall be provided at the forward end of the hosebed in each corner.

HOSEBED FLOOR:

The floor of the hosebed shall incorporate a channel system for improved air flow and to aid in the drainage of accumulated moisture on the floor, NO EXCEPTIONS.

LIGHT BOXES:

The side wall of the hosebed on each side shall incorporate light boxes for mounting of rear upper warning lights and rear/side scene lights. The light boxes shall be built-in, manufactured of the same material as the hosebed and tank, and paint to match the apparatus body, NO EXCEPTIONS.

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

HOSE BED COVER:

One (1) custom tailored 22 oz. hypalon hose bed cover shall be included with the apparatus body. It shall be manufactured of a flame retardent material with a grab tensile of 480 x 500 lbs. and a tonge tear of 160 x 150 lbs. It shall be crack resistant to -40º Fahrenheit and have an adhesion lbs./in of 10.0 lbs. The hose bed cover shall be fitted to the hose bed and retained with a double woven shock cord on the front and both sides. The shock cord shall system shall utilize nylon hooks spaced every 10"-12". The cover shall be sand weighted across the rear flap and shall also include two (2) 2" wide nylon straps with teflon buckle to meet NFPA requirements.

The hosebed cover shall include a 3 year warranty.

The hypalon cover shall be red in color.

The wetside tank shall be painted to match the apparatus body.

TANK FILL - 2½":

One (1) 2½" tank fill(s) shall be located at the rear of the apparatus. The assembly shall include a 2½" Fireman's Friend Model FFE2530CF8M-F internal check valve, a 2½" NST female swivel with a sweep elbow of at least 30º and a chrome plug. The assembly shall also include a ¾" quarter turn line drain.

The Firemen's Friend is an internally mounted check-type fill valve, capable of flowing at a rate in excess of 1,000 GPM. The valve is self deflecting, requiring no additional diffusion device. The valve is a stainless steel, spring actuated piston type sealing mechanism to minimize seal wear and provide positive sealing of the valve after shutting off the valve at the feed source. The valve seal is designed to be self-cleaning utilizing EPDM rubber. Less than 6psi is required to open the valve.

The mounting plate and TTMA 6-bolt mechanism is positioned on outside of and attached directly to the tank wall. All valve components are constructed of highly corrosive resistant stainless steel, while the external attachment fitting is constructed of corrosion resistant aluminum.

TANK DUMP:

One (1) 10" x 10" square Newton stainless steel swivel dump Model 6012SW-34 with a flip up gate valve shall be installed. It shall include an over center safety lock. The valve shall be bolted to the tank with stainless steel bolts.

The dump shall incorpate a swivel allowing 180º rotation from left to right.

The dump shall be manually controlled from the dump location.

DUMP EXTENSION:

One (1) Newton 36" manually controlled stainless steel extension, model 4036-34, shall be installed on each dump.

The locations of the dump(s) shall be as follows:

One (1) at the rear

12 VOLT ELECTRICAL:

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 microprocessor, automatic reset circuit breakers, and switching relays.

The microprocessors are housed in a weather resistant enclosure. All processors are fully tested, and modern production processes guarantee long-term reliability in the most rigorous environments. The microprocessors handle the numerous switching functions without the excessive use of relays and the need for excess wiring.

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

The 12 volt distribution center shall be placed inside the floor mounted console in the chassis cab. The console top shall be hinged on the forward edge and secured wtih two (2) screws on the trailing edge for ease of access to the distribution center.

Since the microprocessor is of weather resistant design and enclosed in the distribution center, the electrical system has redundant protection against moisture and corrosion. Redundant protection from the elements dramatically improves reliability and durability.

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 shall act as inputs for the microprocessor.

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.

LOAD MANAGEMENT:

The 12 volt load management functions shall be incorporated within the microprocessor based 12 Volt electrical system without the need for a separate load manager.

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.

MANUAL BATTERY RECHARGE RECEPTACLE:

A polarized female battery recharge receptacle shall be installed at the left front body post The male counterpart shall be furnished for installation on the in-house battery recharge systems.

MASTER SWITCH:

A 12 Volt Cole-Hersee Rotary switch shall be installed on the side of the floor mounted console. When in the OFF position, the master switch system shall isolate all electrical power from the apparatus. It shall not interrupt any primary battery/starter wiring originally furnished by the chassis manufacturer.

FLOOR MOUNTED CONSOLE FOR EMERGENCY SWITCHES:

One (1) 12 volt floor mounted console shall be installed in the apparatus. The console shall be manufactured of aluminum material and finished to accent the cab design.

RADIO:

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

AIR COUPLING FOR EXTERNAL COMPRESSOR:

A quick couple air connection shall be piped to the chassis air reserve tank for pressure maintenance from the station air compressor. The connection shall be located at the left side drain panel. A valve shall be located at the reserve tank to prevent air leakage in case of quick couple or piping damage.

TIRE PRESSURE MONITORING DEVICE:

There shall be a tire pressure indicator voucher provided with the completed apparatus. The voucher shall be for mechanical style tire pressure indicators for the front and rear tire valve stem. The indicator shall provide visual indication of pressure in the specific tire.

The tire pressure indicators shall be redeemed upon the receipt of the voucher for installation by the customer.

The devices shall consist of a valve stem cap top with red and green color coding to indicate tire pressure conditions. If the cap is ALL GREEN the tire is properly inflated. If the cap is HALF GREEN/ HALF RED, the tire is approximately 10% under inflated. If the cap is ALL RED, the tire is 20% or more under inflated.

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 at 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:

One (1) Code-3 58" LED lightbar, Model 2758NFPA P1, shall be mounted on the cab roof. The lightbar shall be switched from the in cab switch panel. This lightbar fills the requirements of Zone A Upper, Zone B Upper, and Zone D Upper.

WARNING LIGHTS (FRONT LOWER):

Two (2) Code-3 Model TRX6R red LED lights shall be mounted on the front cab face, one (1) on each side. The lights shall be placed inside chrome flanges. These lights shall be switched from the in cab switch panel. These lights fill the requirements of Zone A Lower.

WARNING LIGHTS (SIDE LOWER):

One (1) Code-3 Model TRX6R red LED light shall be mounted on each side of the vehicle ahead of the

front wheels. Two (2) Code-3 Model TRX6R red LED lights shall be mounted on each side of the vehicle, in the rub rails below the front and rear compartments. These lights shall be switched from the in cab switch panel. The lights shall be placed inside chrome flanges. These lights fill the requirements of Zones B & D Lower.

WARNING LIGHTS (REAR):

Two (2) Code-3 Arch LSS222 red LED beacons shall be mounted on the upper rear area of the vehicle. 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 LOWER):

Two (2) Code-3 Model TRX6R red LED lights shall be mounted on the lower rear area of the vehicle. The lights shall be placed inside chrome flanges. These lights shall be switched from the in cab switch panel. These lights fill the requirements of Zone A Lower.

REAR DRIVING SIGNALS:

The rear driving signals shall consist of two (2) Code 3 7X9STTRBZ LED lights, one (1) each side of the apparatus at the rear. The 7X9 LED lights shall incorporate red brake/tail, amber turn, and white backup in a single light head. The mounting shall include a chome bezel.

ELECTRONIC SIREN:

One (1) Code 3 Model 3692 siren shall be installed in the apparatus. The siren shall be mounted in the cab and shall include a noise-canceling microphone.

SIREN SPEAKER:

One (1) Code-3 Model C3100 U 100 watt siren speaker shall be installed in the apparatus bumper.

BACKUP ALARM:

One (1) Federal Model 210339, 12 volt electronic backup alarm shall be incorporated on the apparatus. The backup alarm shall be a minimum of 97db and switched with the backup light circuitry.

TURN SIGNALS-MIDSHIP:

One (1) S34 Series amber LED midship turn light shall be mounted on each side of the apparatus ahead

of the rear wheels.

ICC LIGHTING:

Tecniq S34 Series LED Clearance lights shall be installed on the apparatus. They shall be hermetically sealed cartridge lights for ease of service and durability.

HAZARD LIGHT:

A red, LED flashing light located in the driving compartment shall be illuminated automatically whenever the apparatus parking brake is not fully engaged and any passenger or equipment compartment door is open, any ladder or equipment rack is not in the stowed position, a stabilizer system is deployed, a powered light tower is extended, or any other device is opened, extended, or deployed that creates a hazard or is likely to cause damage to the apparatus if the apparatus is moved. The light shall be marked "Do Not Move Apparatus When Light Is On".

LED COURTESY LIGHTS (UNDER CARRIAGE LIGHTING):

A 5" 12-volt T41 Series LED light shall be located under each area designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level. All ground area lighting shall be controlled by the master switch and shall be switched with the parking brake.

LED TAILBOARD COURTESY LIGHTS:

Two (2) S34 Series LED courtesy lights shall be mounted one (1) each side low on the rear panel. The lights shall illuminate the rear tailboard. They shall be switched with the parking brake.

SCENE LIGHTS:

Four (4) LED large scene light(s), Code-3 Model 46SCENE, shall be mounted in the specified location(s). Each scene light shall be switched from the cab console.

ADDITIONAL REAR SCENE LIGHT SWITCHING:

In addition to the in-cab switch for the rear scene lights, the lights shall be wired with the back-up light circuitry to illuminate whenever the apparatus is placed in "Reverse".

LOCATION: One (1) each side of the body and two (2) at the rear of the apparatus

HOSEBED BULKHEAD LIGHTING - LED:

Three (3) 5" LED 12-volt lights, T41 Series, shall be located in the front bulkhead of the apparatus hose bed, below the body decking. Each light shall be rubber grommet mounted and shall be recessed in the upper front wall. Each light shall be switched with the parking brake.

BRACKETING:

FOL-DA-TANK RACK:

One (1) fol-da-tank rack shall be installed on the top of the compartment on the apparatus right side. The fol-da-tank shall lie between the top of the compartments and the bottom of the "T" cutout of the tank. The storage area will have an open top.

The tank storage area shall have a stop at the front and rear and shall be open on the sides.

SUCTION HOSE TRAY:

One (1) suction hose tray shall be located on the left side of the apparatus between the top of the compartment and the bottom of the "T" cutout of the tank. The suction hose tray will have an open top. The suction hose tray shall have the capacity to carry two (2) 10' lengths of hard suction hose.

Each bracket shall have the capacity for a 2100 gallon fol-da-tank.

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: Rear

GRAB HANDLES:

Two (2) 18" knurled bright stainless steel 1¼" O.D. grab rails shall be installed at the rear of the apparatus.

GRAB HANDLE:

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

WHEEL CHOCKS:

One (1) pair of Worden Safety Model 211001 one-piece rubber wheel chocks shall be provided with the apparatus. Each chock features a molded in grab handle, an elbow fixture for rope or chain attachment, and utilizes a very sticky live rubber to ensure high coefficient of friction.

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.

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.

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

- Hazing, chalking or loss of gloss caused by improper care, abrasive polishes, cleaning agents, heavy-duty pressure washing, or aggressive mechanical wash systems
- Rock chips are not covered under this warranty.
- 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

COMPARTMENT INTERIOR FINISH:

The interior of the compartments shall be natural finish stainless steel.

APPARATUS COLOR:

The color of the apparatus shall be as follows:

COLOR: match chassis red

CHASSIS COLOR:

The color of the chassis as supplied by the chassis manufacturer shall be as follows:

COLOR: red

CODE: TBD

CAB LETTERING:

Vinyl lettering as described below shall be applied to the chassis cab door, one (1) each side. Each letter shall be 2½" to 3½" high and hand applied.

Vinyl letters/numbers shall be applied to the chassis cab fender area, one (1) each side. Each letter/number shall be 2½" to 3½" high and hand applied.

The lettering vinyl style shall be simulated gold leaf.

The lettering font style shall be Eurostile Bold.

The lettering font highlight type shall be shadow.

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 6" reflective Scotchlite striping.

REFLECTIVE STRIPING IN THE CAB:

Two-inch red and white striped retro-reflective material shall be placed on the inside of each opening cab door. The material will be at least 96 square inches, meeting current NFPA standards.

DIAMOND GRADE CHEVRON STRIPING:

The rear of the apparatus shall be striped with Diamond Grade 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 #3992 and flourescent

yellow-green #3983.

The striping shall be applied in the following locations: all vertical surfaces on the rear of the tank, from the top of the body to the hosebed area.

EQUIPMENT:

Two (2) 10' Length(s) of 6" diameter hard suction hose, coupled 6" LHF x 6" RLM. (Not rated for hydrants)

One (1) Fol-Da-Tank(s) #FDT-2100, steel frame, 22 ounce red Hypalon material. The tank shall include a heavy duty 30 oz floor and liner pick-up handles.

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 and installed.

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