



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

Alexis Fire Equipment
Alexis, IL

2277

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 Top Mount 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"



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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.



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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.



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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.



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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



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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.



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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 six (6) 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 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.
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- 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.



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- 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



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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 ____".

OVERALL LENGTH:

The OAL of the unit shall not exceed ____".

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 HUB AND NUT COVERS:

The front and rear wheels shall be dressed with polished 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



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- 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 housing with a hinged stainless steel door, Model 101426. The fill shall be labeled with the type of fuel intended.

CAB TILT PENDANT CONNECTION:

The chassis supplied cab tilt connection shall be mounted on the right side of the apparatus. For a pumper, the receptacle shall be located on the discharge panel. For a rescue, the receptacle shall be located in the R1 compartment.

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.



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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:

DARLEY PSM 1500 SPLIT SHAFT PUMPING SYSTEM:

MANUFACTURER: DARLEY

MODEL: PSM 1500

CAPACITY: 1250 gpm at 150 psi

A Darley model PSM 1500 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



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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:



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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.

ADDITIONAL PRIMER CONTROL:

One (1) additional primer control valve shall be furnished to prime the specified auxiliary inlet individually. The Trident Emergency products RPV (remote priming valve) shall activate using the same air that powers the AirPrime™ system when the coinciding panel valve is depressed. Priming the remote suction line evacuates air from that line and minimizes cavitation during remote suction operations. The valve control is to be co-located next to the main priming valve control on the pump operator's panel.

AUXILARY INLET(S): _____

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 throughout 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



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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 1/4" 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:



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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 - TOP MOUNT:

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. Pump module design beginning with a cage framework assemblies that are precision manufactured from corrosion free heavy 7 gauge stainless steel forms. This framework mounts to the truck frame through a mounting design complimented 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 across the top of the apparatus, and the suction/discharge panels shall be located on the left and right sides 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"



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knuckle, continuous stainless steel hinges. The hinges shall be attached with stainless steel fasteners.

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

The top mount 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.

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.



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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 with 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.



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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 GAUGES:

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.

PUSH BUTTON ON PUMP PANEL FOR AIR HORNS:



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

MIDSHIP WALKWAY

A 22" wide walkway shall be incorporated behind the cab and ahead of the body. The walkway shall be framed and supported with an extruded aluminum frame work. The walkway shall be constructed of 3/16" thick 3003-H12 polished aluminum treadplate and attached to the substructure with stainless steel threaded fasteners.

LED WALKWAY COURTESY LIGHTS:

Two (2) Eon E03 Series LED courtesy lights shall illuminate the pump operator's walk way. They shall be switched with the parking brake.

GRAB HANDLES:

Two (2) 24" knurled bright stainless steel 1¼" o.d. grab rails shall be installed, one (1) on each side of the body at the walkway area.

RUNNING BOARDS

The running boards shall be constructed of grip strut material and shall be attached to the outriggers on the pump module. The 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 top mount pump operator's panel and discharge panels shall be manufactured of 12 gauge stainless steel material. The pump operator's panel shall include a full width light hood.

The operator's panel shall have three (3) E10 Series LED lights and the discharge panels shall each have two (2) Eon E03 Series LED lights .

The lights activated by the pump panel light switch.



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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 top mount pump operator's panel. Each discharge shall include a self-locking 2 ½" quarter-turn ball valve, a 2 ½" 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 controlled from the top mount pump operator's panel. Each discharge shall include a self-locking 2 ½" quarter-turn ball valve, a 2 ½" chrome cap with chain, and a sweep elbow of at least 30 degrees downward.

Each above valve shall be manually controlled.

2 ½" DISCHARGE, APPARATUS REAR:

One (1) 2 ½" discharge shall be located on the rear of the apparatus. Each discharge shall be controlled from the top mount pump operator's panel. Each shall include a self-locking 2 ½" quarter-turn ball valve, a 2 ½" chrome cap with chain, and a sweep elbow of at least 30 degrees downward.

Each above valve shall be manually controlled.

LOCATION: _____

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 top mount pump operator's panel. A 2 ½" gauge shall be adjacent to the control. Each 3" and larger discharge shall 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.



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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:

Each rated 2½" discharge and those of larger sizes shall incorporate a ¾" quarter turn drain hoses to ground. The drain shall be located behind the body panel and shall be remote controlled from the discharge location.

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.

FRONT SUCTION – CUSTOM CHASSIS:

One (1) 5" suction shall be located at the front of the apparatus. The suction piping shall be as described in the custom chassis specifications. An inlet screen and a long handle cap shall be included. The operator has an Open/Closed indicator device showing the valve position at all times. The butterfly valve shall be made of lightweight aluminum alloy with a bronze valve disc and 1-piece rubber seat. It shall be rated at 250 psi working pressure. The electric actuator shall have a worm gear drive system with emergency manual override. All the controls shall be within a single mountable panel package that utilizes current limiting for fully open and closed stopping. There shall be no switches in the gear actuator housing.

INTAKE RELIEF VALVE:

One (1) TFT A1860 intake relief valve shall be installed on the auxiliary intake of the pump. The



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minimum range shall permit control from 75 to 250 psi. (per NFPA 4-5.1).

FRONT SUCTION ELBOW - PAINTED:

The front suction shall incorporate a 5" Elkhart 348 swivel elbow terminating as described below. The Elkhart swivel shall be painted job color.

The auxiliary suction shall terminate 6" NSTM.

SUCTION LINE DRAINS:

Each 2½" gated suction and those of larger sizes shall incorporate a ¾" quarter turn drain hosed to ground. The drain shall be located behind the body panel, remote 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.

CARTRIDGE LAY PRECONNECT MODULE - (1) 1½" AND (1) 2½":

One (1) independent preconnect module shall be located ahead of the pump module, above the frame rails. The module shall be manufactured of stainless steel material, self supported, and shall incorporate three (3) preconnect hose beds.

One (1) 1½" cartridge lay preconnects shall be incorporated in the preconnect module. Each preconnect shall include a 1½" 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) 2½" cartridge lay preconnect shall be incorporated in the preconnect module. 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.

The 1½" preconnect shall have the capacity to contain not less than 200' of 1¾" double jacket hose and



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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 .1875" 5052 - aluminum sheet that is fabricated 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.

CARTRIDGE LAY PRECONNECT COVER - HYPALON:

The Cartridge Lay preconnect area shall be covered with a fire and chemically resistant material. It is to be retained to the apparatus with a slotted track retainer across top and heavy duty velcro on each side

The hypalon cover shall be red in color.

1½" PRECONNECT, BUMPER EXTENSION:

One (1) 1½" preconnect shall be incorporated within the bumper extension. The piping shall measure 2" i.d. and shall be valved with 2" full flow quarter turn ball valves that are controlled from the operator's panel. It shall include a bumper deck mounted 1½" swivel adapted to 1½" fire hose thread

Each above valve shall be manually controlled.

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



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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 device. 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



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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.

BODY SUB FRAME – GALVANIZED 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



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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 a complete structural steel sub frame with downriggers and outriggers for maximum strength and proper flexibility of the frame. The steel sub frame shall incorporate 6 x 6 x .375 ASME angle which shall run full length of the chassis frame. The angle allows heavy duty stability to each outrigger installed on the unit. This system will keep the outriggers from deflecting once the unit is loaded.

Each out rigger shall consist of 4" x 2" x .250 gauge steel rectangular tubing vertical downriggers to continue the total sub frame support. The horizontal under compartment outrigger shall be manufactured of a custom 7 gauge steel material which is formed in a channel design for maximum support. The horizontal outriggers shall include a minimum of two (2) custom designed **VibraCenters** installed on each outrigger to support the load of the body. This system also supports the compartment load and allows it to absorb the road energy and prevent premature wear of the customer's equipment which is loaded in the apparatus. Each **VibraCenter** is designed to carry the load of the apparatus per NFPA guidelines and to absorb shock loads in excess of 10 g's.

If the apparatus incorporates a rear drop sleeper design the sleeper system shall incorporate the 4 x 2 x .250 rectangular sleeper system for maximum body 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 3 inch 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.

All welds which are butt welded must and shall be furnished with a steel web plate for additional weld strength. 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.



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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.

It is important to note during that the manufacturing of the sub frame strategic notches and holes will be placed to allow the molten material to totally encapsulate the sub frame system.

APPARATUS FRONT PANEL:

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

ALUMINUM BODY PANELS:

The apparatus body panels shall be full height and independent of the tank's sides. The body panels shall be constructed of .190 thick 5052 aluminum material. The material shall be reinforced with 6063 reinforced panel splicers that are extruded for maximum 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 aluminum, in preparation for Chevron striping.

WHEEL HOUSING, PAINTED SMOOTH ALUMINUM:

The rear wheel housing shall be constructed of painted aluminum and shall incorporate a polished stainless steel fenderette. The circular interliner shall be manufactured of 3/16" Tivar 1000 polymer material.



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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.

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 constructed of 5052 aluminum and shall be of a slatted design to provide proper drainage of hose bed.

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.

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.



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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 -40° 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 end flap shall include reflexite striping in a chevron pattern. The striping shall alternate red and fluorescent lime yellow in color.

The hypalon cover shall be red in color.

COMPARTMENTATION:

COMPARTMENT DESIGN:

The compartmentation shall be fabricated of 3/16" (.1875") thick 5052 H32 aluminum. 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 aluminum. There shall be NO EXCEPTIONS to the thickness of the aluminum.

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

PAINTED ROLL-UP DOORS:

The side compartments shall have Robinson Roll-up Shutter Doors with a **painted** 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.

The rear compartment shall have Robinson Roll-up Shutter Door with a **satin** finish. The door 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.



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DOOR GUARD:

There shall be a .125" aluminum treadplate door guard located at the top of the compartment to protect the painted surface of the ROM door from damage while the door is open. The door opening height as stated will be reduced by approximately 2" to accommodate the door guard.

The roll-up door side tracks and top drip rail shall remain **satín** finish.

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.

LEFT SIDE BODY SHALL BE AS FOLLOWS:

L1

A roll-up door compartment assembly with a door opening of 30" wide x 61" 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.

The compartment shall include the following:

Unistrut Tracking

One (1) 5" 12-volt T41 Series LED light(s)

L2

One (1) compartment with a HEMMED lift-up door shall be located above the wheel well on the left side. It shall have a door opening of 56" wide x 31" high x 11" deep.

The compartment shall include the following:

Unistrut Tracking

One (1) 5" 12-volt T41 Series LED light(s)

L3



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A roll-up door compartment assembly with a door opening of 42" wide x 61" 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.

The L3 compartment shall extend to the rear body panel.

The compartment shall include the following:

Unistrut Tracking

One (1) 5" 12-volt T41 Series LED light(s)

RIGHT SIDE BODY SHALL BE AS FOLLOWS:

R1

A roll-up door compartment assembly with a door opening of 30" wide x 45" high x 26" deep shall be incorporated on the apparatus right side ahead of the rear wheels.

The compartment shall include the following:

Unistrut Tracking

One (1) 5" 12-volt T41 Series LED light(s)

R2

One (1) compartment with a HEMMED drop down door shall be located above the wheel well on the right side. It shall have a door opening of 56" wide x 15" high x 25" deep.

The compartment shall include the following:

Unistrut Tracking

One (1) 5" 12-volt T41 Series LED light(s)

R3

A roll-up door compartment assembly with a door opening of 42" wide x 45" high x 12" deep in the



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

The R3 compartment shall extend to the rear body rail.

The compartment shall include the following:

Unistrut Tracking

One (1) 5" 12-volt T41 Series LED light(s)

REAR COMPARTMENT SHALL BE AS FOLLOWS:

A roll-up door compartment assembly with a door opening of 36" wide x 44" high x 29" deep shall be located at the rear of the apparatus.

TRANSVERSE OPENING:

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.

The rear compartment shall include the following:

One (1) 5" 12-volt T41 Series LED light(s)

ELECTRICALLY CONTROLLED LADDER RACK:

One (1) Ziamatic LAS-XT quick lift ladder system shall be installed on the apparatus. The ladder system shall be controlled from the front area of the ladder location.

The LAS-XT shall incorporate a new, patented cable and pulley system capable of raising and lowering ladders an additional 12 inches for quick, easy, and safe retrieval.

ATTIC LADDER BRACKET:

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

The ladder storage shall have the capacity to contain the following: One (1) 24' 2-section ladder, one (1)



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14' roof ladder with hooks, and one (1) 10' attic ladder

The ladder rack finish shall remain as originally supplied by the Zico.

LOCATION: Right Side

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:

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 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



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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 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.



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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 1/4" 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 1/2" 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.

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 company's satisfaction to have been defective, provided that such part, or parts shall be returned to us within five (5) years or 40,000 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.

Prior to any warranty work being performed on the unit, a Warranty Authorization Number must be obtained from Alexis Fire Equipment.

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



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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 un-restricted 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 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 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. Since the microprocessor is of weather resistant design and enclosed in the service 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 280° 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



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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 is 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 280° F (143° 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:



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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 45° 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:

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

FRONT WARNING LIGHTS:



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

WARNING LIGHTS (SIDE):

Two (2) Code-3 Model 65 BZR red LED lights shall be mounted on the right (officer's) side of the vehicle. These lights shall be switched from the in cab switch panel. These lights fill the requirements of Zone B Lower.

Two (2) Code-3 Model 65 BZR red LED lights shall be mounted on the left (driver's) side of the vehicle. These lights shall be switched from the in cab switch panel. These lights fill the requirements of Zone D Lower. .

WARNING LIGHTS (REAR):

Two (2) Code-3 Arch Model A18 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):

Two (2) Code-3 Model 65 BZR red 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 60BBT: Red-Brake/Tail, Whelen Series LED60A00TAR: Amber Arrow-Turn. The back up light shall be Whelen **Halogen** Series 60J000CR. They shall be surface mounted in a 3-position housing.

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



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sealed cartridge lights for ease of service and durability.

LED REAR LICENSE PLATE BRACKET:

There shall be a Cast Products LED license plate bracket provided at the rear of the apparatus.

PUMP COMPARTMENT LIGHT:

One (1) 5" T41 Series LED light shall be installed in the pump compartment. The light shall be switched with pump panel lights.

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. Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be activated automatically when the exit doors are opened. All other ground area lighting 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.

LED RUNNING BOARD COURTESY LIGHTS:

One (1) S34 Series LED courtesy light shall be mounted on each side low on the pump module. Each light shall illuminate the running board area. The lights shall be switched with the parking brake.

TELESCOPIC LED FLOODLIGHT



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Two (2) Fire Research Spectra LED Scene Light model SPA530-Q20 side mount push up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 2 3/4" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

The lamphead shall have eighty four (84) ultra-bright white LEDs, 72 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 12/24 volts DC, draw 18/9 amps, and generate 20,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamphead shall be no more than 5 7/8" high by 14" wide by 3 1/2" deep and have a heat resistant handle. The lamphead and mounting arm shall be powder coated. The LED scene light shall be for fire service use.

ON / OFF SWITCH FOR FOCUS LAMPHEAD

Fire Research Focus –ON option switch shall be installed on the Focus lamphead. The weatherproof on-off toggle switch shall be mounted in a switchbox below the lamphead. The switchbox shall be powder coated white.

LOCATION: One (1) each side at the back of the cab

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:

FOLDING STEPS:

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

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



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INTERMEDIATE WALKWAY STEP:

An intermediate step constructed of 3/16" aluminum treadplate shall be located on each side of the apparatus at the walkway, between the top of the walkway and the running board. The step shall be 8" deep x 12 " wide.

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 STORAGE COMPARTMENT:

One (1) hard suction hose storage compartments shall be designed into the rear of the apparatus. The hose shall be accessible from the rear of the apparatus below the tank "T". The compartments shall incorporate a hinged aluminum treadplate door with latch. The compartment shall have the capacity to carry two (2) lengths of suction hose.

LOCATION: Right Side

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 contaminants and oxidation is essential to the final effect of a finish system, the



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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:



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- 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

The hose bed interior walls shall remain natural finish aluminum.

COMPARTMENT INTERIOR FINISH:

The interior of the compartments shall be natural finish aluminum

APPARATUS COLOR:

The color of the apparatus shall be as follows:

COLOR: _____

CHASSIS COLOR:

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

COLOR: _____

CODE: _____

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.



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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.

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 45° angle. The striping shall be single color alternating between 3M Red #680-72 and 3M Lemon Yellow #680-81.

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

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 hard suction hose, coupled 6" LHF x 6" RLM. (Not rated for hydrants)



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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 1901 for 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