

CUSTOMER APPROVAL SIGNATURE:

DATE:

AFE-2648  
IN THE EVENT THERE ARE DISCREPANCIES BETWEEN THE DRAWING AND THE SPECIFICATIONS, THE SPECIFICATIONS SHALL PREVAIL.

COMPARTMENT DIMENSIONS

COMP #	DOOR OPENING SIZES
L1 & R1	61" WIDE X 62" HIGH X 25" DEEP
L2 & R2	63" WIDE X 30" HIGH X 25" DEEP
L3 & R3	52" WIDE X 62" HIGH X 25" DEEP
REAR	41" WIDE X 61" HIGH X 30" DEEP

<b>Pump Info:</b>	Apparatus Type: <b>Pumper</b>
Control Location: <b>Top</b>	Chassis: <b>INTERNATIONAL MV607 4-DOOR</b>
Pump Drive: <b>Split Shaft</b>	Tank Capacity: <b>1000</b>
Pump Make: <b>Darley</b>	Material: <b>Stainless Steel</b>
Pump Model: <b>PSM</b>	
Pump GPM: <b>1250</b>	

REVISION HISTORY			
REV	DESCRIPTION	DATE	DWN

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
TOLERANCES ARE NOT CUMULATIVE  
DECIMAL  $\pm 0.062$  ANGULAR  $\pm 0.5^\circ$   
FRACTIONAL  $\pm 1/16$  METRIC  $\pm 1.6$  mm

The copyright of this drawing and design  
and the right of reproduction there is vested  
in and belongs to Alexis Fire Equipment Co.

DRAWN  
C.SHUCK  
MATERIAL

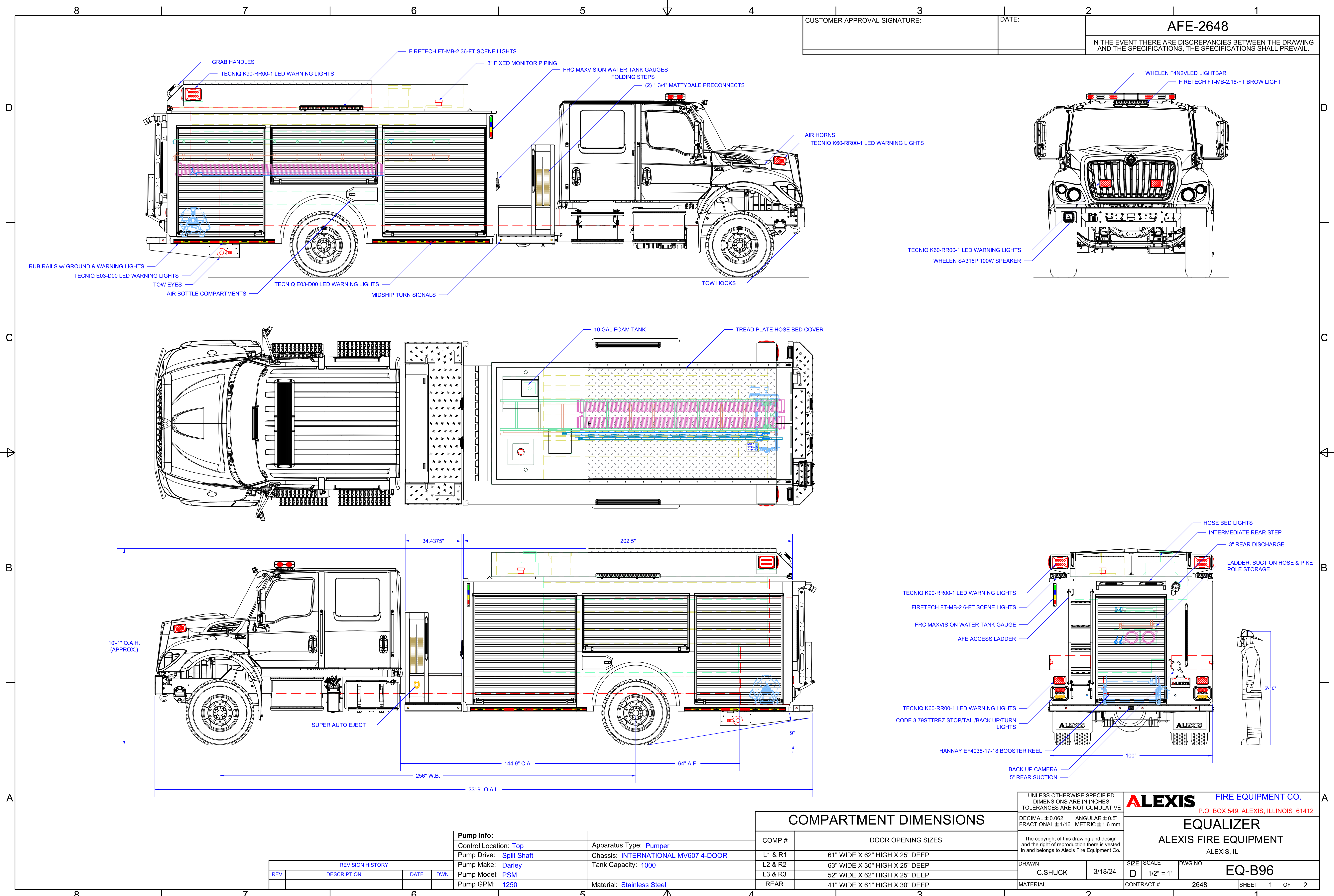
**ALEXIS** FIRE EQUIPMENT CO.  
P.O. BOX 549, ALEXIS, ILLINOIS 61412

**EQUALIZER**  
ALEXIS FIRE EQUIPMENT  
ALEXIS, IL

SIZE SCALE DWG NO  
D 1/2" = 1' EQ-B96

CONTRACT # 2648 SHEET 1 OF 2





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UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
TOLERANCES ARE NOT CUMULATIVE

DECIMAL ± 0.062    ANGULAR ± 0.5°  
FRACTIONAL ± 1/16    METRIC ± 1.6 mm

**ALEXIS**    FIRE EQUIPMENT CO.  
P.O. BOX 549, ALEXIS, ILLINOIS 61412

**EQUALIZER**  
ALEXIS FIRE EQUIPMENT  
ALEXIS, IL

DRAWN: C.SHUCK  
MATERIAL: 3/18/24

SIZE: D  
SCALE: 1/2" = 1'

DWG NO: EQ-B96

CONTRACT #: 2648

SHEET 1 OF 2



 Alexis Fire Equipment  
109 East Broadway / Alexis, IL 61412  
 800-322-2284  sales@alexisfire.com  
 AlexisFire.com

Alexis Fire Equipment Company  
Alexis, IL

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

One (1) Alexis Demo #2648 Crew Cab Equalizer 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 550 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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109 East Broadway / Alexis, IL 61412  
 800-322-2284  sales@alexisfire.com  
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### **PAYMENT TERMS**

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 front page price reflects a discount of \$ 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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### **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: Spartan Motors, Darley, Hale, 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

Location: 109 East Broadway Alexis, IL 61412

Phone: 800-322-2284



 Alexis Fire Equipment  
109 East Broadway / Alexis, IL 61412  
 800-322-2284  sales@alexisfire.com  
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### **DELIVERY:**

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

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

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



## **GENERAL INFORMATION:**

### **LOCATION**

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

### **NOTATION**

To further assure the customer of our ability to manufacture quality fire apparatus, we are proud of the fact that Alexis Fire Equipment Company is family-owned and has been in the fire apparatus business since 1947. All apparatus manufactured by Alexis Fire Equipment are designed and built to meet the requirements of the latest edition of NFPA 1901.

### **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 five (5) 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.
- 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 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 not later than two years 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. 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:

1. To normal maintenance service or adjustments.
2. To any vehicle which shall have been repaired or altered outside of our factory, in any way so as, in our judgement, 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.
3. To the chassis and associated equipment furnished with chassis, signaling device, generators, batteries or other trade accessories. These are usually warranted separately by their respective manufacturers.
4. To work performed by an outside service without prior authorization obtained from Alexis Fire Equipment.
5. 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 or authorize any other person to give or assume any other warranty or liability on the company's behalf unless made or assumed in writing by the company.

Surety Bond, if required, will cover standard two-year warranty period only and will not cover any extended warranties allowed by Alexis Fire Equipment co. or other component manufacturers.

### **LENGTH AND/OR HEIGHT LIMITATIONS:**

#### **OVERALL HEIGHT:**

There shall be no overall height restrictions.

#### **OVERALL LENGTH:**

There shall be no overall length restrictions.

### **CHASSIS MODIFICATIONS:**

#### **STEP ASSEMBLIES:**

The step assemblies on the left and right side of the chassis shall remain as specified in the chassis specifications.

#### **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.

### **CHASSIS SUPPLIED WHEELS:**

The wheel finish on the apparatus shall be left as specified in the chassis specifications.

**COLOR:** \_\_\_\_\_

#### **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.

### **WALK-AWAY AIR PAK BRACKETS:**

Four (4) SCBA brackets shall be installed in the chassis cab, one (1) at each applicable seat area. The

bracket will use a positive latching mechanical means of holding the SCBA device in its stowed position such that the SCBA unit cannot be retained in the mount unless the positive latch is engaged. (Zico ULLH)

TYPE: \_\_\_\_\_

### **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:**

### **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.

## **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: Rear Intake

## **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.

## **STEAMER GATES:**

One (1) Elkhart EB6D butterfly valve(s) shall be installed in the specified suction inlet(s) of the pump.

The valve shall have a ductile iron body with aluminum/bronze disk and EPDM seat. The valve shall be pressure rated to 250psi with a Cv Value of 1950. The valve shall be capable of bi directional flow. The valve shall not require lubrication of seats or any internal waterway components, and must be capable of swinging out of the waterway for maintenance. The valve shall carry a 10-year manufacturer's warranty. This valve shall be operated using an electric gear drive actuator. The actuator shall be quickly adjustable to one of four positions. The clutchless electric drive shall open or close the valve in no less than 5 seconds.

A warning label stating **"Warning: serious injury or death could occur if inlet is supplied by a pressurized source when the valve is closed"** shall be supplied and mounted.

### **APEX-S VALVE CONTROLLER**

An Elkhart Brass APEX-S Electric Valve Controller shall be provided. The controller shall be no greater than 3.75" wide. The controller shall be rated to IP67 and operate the electric valve from a supply voltage of 12-24 VDC. Controller shall have CAN network capability. Valve position shall be monitored via true position feedback and displayed by 10 LED position indicators. The controller shall include OPEN/CLOSE buttons, a one-touch programmable preset valve position and auto-open/auto-close function. The controller shall include a top-mounted changeable visor available in colors to match the discharge.

#### Product Features

- Valve control with 10 segment LEDs for position indication
- CAN network compatible
- Oversized buttons for easy gloved-hand operation
- Programmable preset for automatic valve positioning
- AUTO open/close feature for quick operation
- Visors in NFPA colors to match pump discharge colors

The Apex-S Visor Color shall be Burgundy.

LOCATION: Left Side

### **SHORT SUCTION MANIFOLDS:**

The pump manifold on each side of the vehicle shall be equipped with a "short" suction tube to allow the attachment of adapters without excessive overhang.

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. 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) Elkhart Model #40-20, relief valve shall be provided. The relief valve is designed to be installed permanently on the suction side of the pump..

The relief valve shall be fully adjustable from 75 to 250 PSI which will be pre-set at 125 PSI. The valve shall be brass construction with a stainless steel mechanism and it shall have a rubber seat to ensure a positive vacuum seal.

### **HEATED PUMP ENCLOSURE:**

The pump compartment shall be completely enclosed and shall incorporate a removable slide-out bottom to facilitate pump service. The compartment shall be heated with a 40,000 BTU hot water heater. The heater fan shall be switched from the pump panel.

### **REQUIRED PUMP TESTING:**

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

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

### **PUMP CERTIFICATION:**

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

The pumping system shall be capable of delivering:

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

### **PUMP MODULE - TOP MOUNT:**



**An incorporated pump module shall be located between the chassis cab and the front of the body.** 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.

The top mounted pump operator's panel shall incorporate three (3) E10 Series LED lights, which shall be switched with the pump panel light switch. The discharge panel on each side shall be illuminated with the compartment interior lighting, with one (1) additional compartment light located ahead of the compartment divider on each side.

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

The top mount operator's panel shall be hinged for access to the individual gauges and the electrical components. The suction/discharge panels shall have removable panels for pump, valve, and piping access. **Each suction/discharge panel shall be secured with a four (4) latch (approximate) system.**

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

### **PUMP CONTROLS:**

The top mount pump panel shall incorporate Innovative Controls Pistol Grip controllers.

### **PUMP OPERATOR'S PANEL:**

The pump operator's panel shall include the following:

### **PRESSURE GOVERNOR and MONITORING DISPLAY**

One (1) Fire Research PumpBoss Max series PBA501-D00 pressure governor and control module kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module housing shall be waterproof and have dimensions not to exceed 7 1/2" high by 3 5/8" wide. 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 2" from the front of the control module. The control LCD shall be 3.5" in size with a minimum brightness of 1000 nits and optically bonded to 3mm Borofloat Glass. Inputs for monitored engine information shall be from a J1939 data bus or independent sensors. Outputs for engine control shall be on the J1939 data bus. Inputs from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown on LCD screen
- Check engine and stop engine warning; shown on LCD screen
- Engine oil pressure; shown on LCD screen
- Engine coolant temperature; shown on LCD screen
- Transmission Temperature; shown on LCD screen
- Battery voltage; shown on LCD screen
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on LCD screen
- Throttle ready / Ok to Pump LEDs.

On screen (LCD) 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. LCD Screen and LED's intensity shall be automatically adjusted for day and nighttime 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 pressure 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 and Ok to Pump LED shall light when the interlock signal is recognized. The pressure governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the pressure 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 pressure governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor control module shall be programmed at installation for a Cummins engine.

### **MASTER GAUGES:**

One (1) 4½" compound gauge with a range of 30-0-400 PSI.

One (1) 4½" pressure gauge with a range of 0-400 PSI

### **MAXVISION TANK LEVEL INDICATOR:**

Fire Research TankVision model WLA280-A00 tank remote indicator shall be installed. The indicator shall show the volume of water in the tank on Ninety six (96) easy to see super bright Tri-color LEDs. The indicator case shall be waterproof, manufactured of Polycarbonate material with an integrated lens. The package includes a rubber gasket.

The remote indicator shall receive input information over a datalink from a Fire Research TankVision primary indicator model WLA300-A00. The remote indicator shall indicate the level as a single color in Red for 25% or less, Amber color for up to 50% volume, Blue color for up to 75% volume and Green color for up to 100% volume. When the level reaches 25%, the red LEDs will begin flashing. When the level is empty, the red LEDs will scroll in a down-chasing motion and then flash three times. It shall have the program capability to adjust the brightness level for day time and nighttime viewing.

There shall be three (3) MaxVision Tank Level strip lights provided on the apparatus, one (1) each side and one (1) at the rear.

In addition to the LED MaxVision displays, a FRC TankVision WLA300 water level gauge will be located on the pump operator's panel.

Each strip light shall be mounted utilizing a chrome plated flange.

### **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.

One (1) tank gauge receiver

One (1) recycle/tank fill

One (1) primer control

The lights shall be activated by a switch located on the pump operator's panel.

### **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.

Alexis Standard Tags:

Front Bumper Jump Line	Orange
Preconnect #1	Red
Preconnect #2	Yellow
Preconnect #3	Seafoam
Discharge #1	White
Discharge #2	Blue
Discharge #3	Black
Discharge #4	Green
Discharge #5/Water tower	Purple
Deluge/deck gun	Silver
Large-diameter hose	Yellow with white border
Foam line(s)	Red with white border
Booster reel(s)	Gray
Inlets	Burgundy

### **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:**

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 a stainless steel frame work. The walkway shall be constructed of 12 gauge star punched stainless steel material 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.

### **LED LIGHTED FOLDING STEPS:**

Two (2) IC dual LED lighted large folding step(s) shall be furnished on the apparatus. Each step shall feature a light for the stepping surface and a down facing light below the step. The step lights shall be switched with the park brake.

Location: On the nose panel of the pump module at the walkway area

### **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.

Each grab handle shall have a natural stainless steel finish

### **RUNNING BOARDS**

The running boards shall be constructed of 12 gauge star punched stainless steel material. The material meets NFPA standard 13-7.3: all exterior surfaces have a minimum slip resistance of .68.

### **RUB RAILS - RUNNING BOARDS:**

Bolt on aluminum rub rails shall be installed one (1) each side on the running boards. Said rub rails will be fabricated of a polished "C" channel aluminum, mounted to the running board utilizing ¼" plastic



spacers.

The rub rails shall incorporate the LED ground lights. Each light strip shall run the full length of each rub rail.

The channel designed rub rail shall incorporate a highly reflective red and fluorescent yellow green reflective stripe to aid in apparatus protection.

### **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 .

### **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 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 controlled from the top mount pump operator's panel. Each discharge 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(S), APPARATUS RIGHT SIDE:**

One (1) 3" discharge(s) shall be located on the right side of the apparatus with each valve behind the body panel. Each discharge shall be controlled from the top mount pump operator's panel. The valve shall be a 3" slow close valve per NFPA.



### **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.

### **3" DISCHARGE, APPARATUS REAR:**

One (1) 3" discharge shall be located at the rear of the apparatus on the right side. The discharge shall be controlled from the pump operator's panel. The valve shall measure 3" and include an Akron 7830 with an Akron Slo-Cloz adapter.

One (1) Trident 01.054.20 3" FNST Swivel x 2½" MNST elbow with cap and chain shall be supplied for the 3" discharge.

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 is to be piped 2½" i.d., including an Akron 2½" full flow quarter turn valve, and a 2½" NST female swivel with plug and chain. It is to be controlled from the suction location.

### **REAR SUCTION:**

One (1) 5" suction shall be located at the apparatus rear. It shall be piped with 5" butterfly valve, adapted as described below. 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 one (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 of the controls shall be within a single panel mountable package, which utilizes current limiting for fully open and closed stopping. There shall be no switches in the gear actuator housing.

### **INTAKE RELIEF VALVE:**

One (1) Elkhart Model 40-20 intake relief valve shall be installed on the auxiliary intake of the pump. The minimum range shall permit control from 75 to 250 psi. (per NFPA 4-5.1).

One (1) 5" NPTF x 6" NSTM with screen, chrome plated.

### **FOAM PRO 1600 SINGLE TANK:**

The apparatus shall be equipped with a FoamPro 1600 Foam System. The system is an electronic, fully automatic, variable speed, direct injection, discharge side foam proportioning system. The system shall be capable of handling Class A foam concentrate. The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures. System must be capable of delivering accuracy to within 3% of calibrated settings over the advertised operation range when installed according to factory standards. The system shall be equipped with a control module suitable for installation on the pump panel. Incorporated within the motor driver shall be a microprocessor that receives input from the system flowmeter, while also monitoring foam concentrate pump output, comparing values to ensure that the operator preset proportional amount of foam concentrate is injected into the discharge side of the fire pump. A paddlewheel-type flowmeter shall be installed in the discharge system specified to be "foam capable."

The control module shall enable the pump operator to:

Activate the foam proportioning system

Select proportioning rates from 0.1% to 1.0%

See a "low concentrate" warning light flash when the foam tank runs low and in two minutes, if foam concentrate is not added to the tank, shut the foam concentrate pump down

The system capacity shall be as follows:

% of foam	Maximum Water Flow (GPM)
.2%	850 GPM
.5%	340 GPM
1.0%	170 GPM

A 12-volt electric motor driven positive displacement plunger pump shall be provided. The pump capacity shall be 1.7 gpm (6.4 L/min) at 200 psi (13.8 BAR) with a maximum operating pressure up to 400 psi (27.6 BAR). The system will draw a maximum of 30 amps @ 12 VDC. The motor shall be controlled by the microprocessor (mounted to the base of the pump). It shall receive signals from the control module and power the 1/3 hp (.25 Kw) electric motor in a variable speed duty cycle to ensure that the correct proportion of concentrate is injected into the water stream. A full flow check valve shall be provided in the discharge piping to prevent foam contamination of fire pump and water tank. A 5 psi (.35 BAR) opening pressure check valve shall be provided in concentrate line.

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

- Operator control module
- Paddlewheel flowmeter
- Pump and electric motor/motor driver
- Wiring harnesses
- Low level tank switch
- Foam tank
- Foam injection check valve
- Main waterway check valve

### **LABELS FOR FOAM SYSTEM:**

An instruction plate shall be provided for the foam proportioning system that includes, at a minimum, a piping schematic of the system and basic operating instructions.

A nameplate that is marked clearly with the identification and function shall be provided for each control, gauge, and indicator related to the foam proportioning system.

A label shall be provided on the pump operator's panel that identifies the type(s) of foam concentrate(s) that the foam proportioning system is designed to use. It shall also state the minimum/maximum foam proportioning rate(s) at the minimum/maximum rated system flow and pressure.

Two (2) copies of an operations and maintenance manual shall be provided. They shall include a complete diagram of the system together with operating instructions and details outlining all recommended maintenance procedures.

### **FOAM PROPORTIONING SYSTEM ACCURACY:**

The accuracy of the foam proportioning system shall be tested by the apparatus manufacturer prior to delivery of the apparatus. If the manufacturer's rated proportioning ratio is below 3%, the foam system shall proportion foam concentrate within -0 percent / +40 percent of the manufacturer's rated proportioning ratio across the manufacturer's stated range of water flow and pressure. If the manufacturer's rated proportioning ratio is at or above 3%, the foam system shall proportion foam concentrate within -0 percent / +40 percent of the manufacturer's rated proportioning ratio or 1 percentage point, whichever is less, across the manufacturer's stated range of water flow and pressure.

### **FOAM CAPABLE DISCHARGES:**

The following discharges shall be foam capable:

### **FOAM TANK:**

A 10 gallon foam tank shall be incorporated within the apparatus. It shall be baffled and constructed of polypropylene. The fills shall be installed and vented to allow filling without a foaming reaction from the foam concentrate. Two valves shall be incorporated with the foam tank, one for the foam induction system and one for a drain hose to ground.

### **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.

### **MATTYDALE PRECONNECT MODULE - (2) 1½:**

One (1) independent preconnect module shall be located at the front of the midship walkway 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 preconnect hose beds. On each side of the module, outboard of the frame rails, an area shall be provided to facilitate nozzle storage. Each nozzle shall be retained in the storage area behind the preconnect cover.



Two (2) 1½" preconnects shall be provided in the module. The preconnects shall incorporate a 1½", 180° Elkhart 348 swivel adapted to 1½" fire hose thread. The waterways shall be 2" i.d. and include a 2" full flow quarter turn ball valve that is controlled from the operator's panel (NFPA 4-7.2).

Each preconnect shall have the capacity to contain a minimum of 200 ft. of 1¾" hose with nozzle. The preconnects shall be designed as to allow the extension of hose to the left or right side of the apparatus body.

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 shock cord and nylon clip system.

The hypalon cover shall be red in color.

#### **BOOSTER REEL:**

A Hannay Booster Reel, model EF4038-17-18RB, with electric rewind shall be installed in the rear compartment, mounted on the rear wall. A roller/ spool assembly, stainless steel roller, and chrome-plated spools shall be located within the compartment attached to the reel. The reel rewind switch shall be located on the exterior of the compartment.

The reel shall contain 100' of 1" lightweight booster hose coupled 1".

#### **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 a Stainless Steel Ball Valve, per the following specifications.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of bi-directional flow and incorporate a self-locking ball. The valve shall not



require lubrication of seats or any other internal waterway components, and must be capable of swinging out of the waterway for maintenance. The valve shall be manufactured in the United States and shall carry a ten year 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 two-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 12 gauge stainless steel bodies, fabricated by Alexis Fire Equipment, under normal use and with reasonable maintenance, shall remain structurally sound for the lifetime of the apparatus per NFPA recommendations 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:**

### **FRONT BODY PANEL:**

The front of the body is manufactured of 14 gauge 304 #4 finish stainless steel for ease of maintenance and protection of the lower body area.

### **REAR BODY PANEL:**

The rear center of the body shall be smooth 14 gauge 304 #4 finish stainless steel material, in preparation for Chevron striping.

### **WHEEL HOUSING, SMOOTH STAINLESS STEEL:**

The rear wheel housing and center door posts shall be constructed of 12 gauge 304 stainless steel with a #4 finish and shall incorporate a polished stainless steel fenderette. The circular interliner shall be manufactured of 3/16" Tivar 1000 polymer material. The wheel well shall be a bolt-in wheel well assembly for ease of maintenance in the apparatus.

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.

The wheel well housing and upper center door post finish shall remain natural stainless steel # 4 finish

### **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 304L stainless steel material. The stainless steel sub frame shall incorporate 6 x 3 x .375 304L stainless steel angle which shall run the full length of each chassis frame rail from the back of the cab to the end of the frame. The angle provides heavy duty stability to each outrigger installed on the unit. The system is designed to keep the outriggers from deflecting once the unit is loaded.

Each outrigger shall consist of a 4 x 2 x 7 gauge 304L stainless steel rectangular tubing vertical downrigger to continue the total sub frame support. Each horizontal under compartment outrigger shall be manufactured of a custom 7 gauge 304L stainless 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.

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 304L stainless steel channel placed in accordance with the poly tank manufacturer's recommendations. Each channel is reflex coated to prevent the water tank from chaffing with the stainless steel sub frame.

The stainless steel subframe shall be manufactured utilizing 3/8" Magna-Grip LockBolt fasteners. The fasteners are widely known as the most reliable wide grip fastening system available and also provide vibration and loosening resistance.

### **TAILSTEP:**

The tailstep shall be constructed of 12 gauge star punched stainless steel material. The material meets NFPA standard 13-7.3: all exterior surfaces have a minimum slip resistance of .68.

The tail step shall incorporate 45° tapered corners.

### **GRAB HANDLE:**

One (1) 36" knurled bright stainless steel 1 1/4" O.D. grab handle shall be installed vertically on the rear of the body on the right side.

Each grab handle shall have a natural stainless steel finish

### **REAR TOW EYES:**

Two (2) 3/4" thick steel tow eyes shall be securely fastened to the rear frame rails, one (1) on each side below the body at the rear. Each tow eye shall be manufactured of the same material as the body subframe

### **DUAL BOTTLE AIR BOTTLE COMPARTMENT(S):**

Two (2) Model 101400-1X air bottle storage compartment(s) shall be located in the apparatus wheel well assemblies. For ease of access, each bottle shall be stored within an individual storage tube manufactured of poly material. Each individual storage tube shall be designed in a tear drop profile with flex-tube configuration for optimal abrasion-less storage.

The compartment shall incorporate a double bottle vertically hinged stainless steel door with a black push button latch. Each compartment shall have the capacity to carry two (2) air bottles.

LOCATION: One (1) Each Side Ahead of the Rear Wheels

### **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 hosebed shall be incorporated with the booster tank and shall be manufactured of poly material. The hose bed compartment shall have a minimum capacity of 55 cu. ft. and a minimum width of 63". The rear corners of the hose bed side walls shall be tapered for improved access.

### **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.

### **HOSE BED CAPACITY:**

The hose bed shall have the capacity to carry the following hose from left to right:

### **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.

Each hose bed divider shall incorporate hand hold cutouts to assist in accessing the hose bed.



### **HOSE BED COVER:**

One (1) custom tailored 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 hypalon cover shall be red in color.

The side panels of the hose bed shall be painted to match the lower cab color.

### **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 smooth stainless steel material and shall meet the intent of the latest edition of NFPA 15.7 regarding stepping, standing, and walking surfaces. The material 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 corners of the body shall remain natural finish #4 stainless steel. The material be full height and shall wrap around each corner to the compartment door frame.

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 ROM Series IV 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 lift bar shall be a D-shaped bar for strength and ease of use.

The rear compartment shall have ROM Series IV 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. The lift bar shall be a D-shaped bar for strength and ease of use.

### DOOR GUARD:

Each roll-up door shall incorporate a stainless steel guard. The guard shall be located at the top of the compartment around the roll-up door header to protect the finish of the roll-up door when the door is in the up position. The door opening height as stated will be reduced by approximately 2" to accommodate the door guard.

### TALL BOTTOM RAIL:

Each ROM door shall incorporate a tall bottom rail for improved accessibility.

### ROLL UP DOOR PULL STRAPS:

Each roll up door shall incorporate a ROM elastic pull strap to assist in closing the door.

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

### LEFT SIDE BODY SHALL BE AS FOLLOWS:

#### L1

A roll-up door compartment assembly with a door opening of 61" wide x 62" high x 25" deep shall be incorporated on the apparatus left side ahead of the rear wheels.

The compartment shall include the following:

One (1) vertical compartment divider separating the pumping system from the balance of the compartment.

Unistrut Tracking

One (1) full depth adjustable shelf (ves)

The shelf shall incorporate two (2) full width slots on the floor for the installation adjustable divider(s)

ROM DuroStrip V5 LED strip lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening.

## **L2**

One (1) compartment with a roll-up door shall be located above the wheel well on the left side. It shall have a door opening of 63" wide x 30" high x 25" deep.

The compartment shall include the following:

Unistrut Tracking

One (1) hinged PACTRAC tool board.

ROM DuroStrip V5 LED strip lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening.

## **L3**

A roll-up door compartment assembly with a door opening of 52" wide x 62" high x 25" deep shall be incorporated on the apparatus left side behind the rear wheels.

The lower area shall be transverse with the R3 compartment.

The compartment shall include the following:

Unistrut Tracking

One (1) full depth adjustable shelf (ves)

The shelf shall incorporate two (2) full width slots on the floor for the installation adjustable divider(s)

ROM DuroStrip V5 LED strip lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening.

## **RIGHT SIDE BODY SHALL BE AS FOLLOWS:**

### **R1**

A roll-up door compartment assembly with a door opening of 61" wide x 62" high x 25" deep shall be

incorporated on the apparatus right side ahead of the rear wheels.

The compartment shall include the following:

One (1) vertical compartment divider separating the pumping system from the balance of the compartment.

Unistrut Tracking

One (1) full depth adjustable shelf (ves)

The shelf shall incorporate two (2) full width slots on the floor for the installation adjustable divider(s)

ROM DuroStrip V5 LED strip lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening.

## **R2**

One (1) compartment with a roll-up door shall be located above the wheel well on the right side. It shall have a door opening of 63" wide x 30" high x 25" deep.

The compartment shall include the following:

Unistrut Tracking

PAC TRAC tool mounting system mounted on the rear wall

There shall be no PAC brackets supplied with the apparatus.

ROM DuroStrip V5 LED strip lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening.

## **R3**

A roll-up door compartment assembly with a door opening of 52" wide x 62" high x 25" deep shall be incorporated on the apparatus right side behind the rear wheels.

The lower area shall be transverse with the L3 compartment.

The compartment shall include the following:



Unistrut Tracking

One (1) full depth adjustable shelf (ves)

The shelf shall incorporate two (2) full width slots on the floor for the installation adjustable divider(s)

ROM DuroStrip V5 LED strip lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening.

**REAR COMPARTMENT SHALL BE AS FOLLOWS:**

A roll-up compartment assembly with a door opening of 41" wide x 61" high x 30" 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:

ROM DuroStrip V5 LED strip lighting to illuminate the entire area. The lights shall run the entire height of the compartment on each side of the door opening.

**LADDER AND SUCTION HOSE STORAGE:**

The ladders and suction hose shall be stored in a compartment located through the booster tank. The compartment shall be manufactured of poly material and shall be accessible from the rear compartment of the apparatus through the rear roll up door.

The ladder and suction hose storage shall have the capacity to contain the following: One (1) 24' 2-section ladder, one (1) 14' Roof Ladder with hooks, one (1) 10' attic ladder, two (2) 10' lengths of hard suction hose and two (2) pike poles.

**PIKE POLE TUBE:**

Two (2) pike pole tube(s) shall be installed on the ladder storage area.

## **RUB RAILS:**

Bolt on aluminum rub rails shall be installed, below the compartment doors. Said rub rails will be fabricated of a polished "C" channel aluminum, mounted to the body surface utilizing ¼" plastic spacers.

The rub rails shall incorporate the LED ground lights and LED lower warning lights. Each light strip shall run the full length of each rub rail.

The striping shall be single color alternating between red #3992 and fluorescent yellow-green #3983.

## **STAINLESS STEEL TOP ACCESS LADDER:**

One (1) Sure-Grip Stainless steel access ladder shall be provided at the rear of the apparatus on the left side. Sure-Grip is a collapsible, self-retracting ladder that provides safety and security while ascending or descending. The ladder stores in a low profile position parallel to the truck body. To use, the bottom section simply flips down and the ladder pulls out to a comfortable climbing angle. When finished, the bottom section flips up and locks in place.

The Sure-Grip Ladder is constructed of stainless steel and uses stainless hardware to provide dependable use in all environments. The standard ladder is provided with a # 4 finish. Aluminum non-skid surface steps provide traction and safety in any condition. Sure-Grip Ladder is designed to meet all NFPA standards.

The access ladder shall incorporate 36" knurled stainless steel grab handles, one (1) each side.

## **DURATILE TILE ON FLOOR:**

The floor of each main body compartment shall be covered with black Duratile Tile.

## **HORIZONTAL UNISTRUT:**

The horizontally installed unistrut tracking as previously specified shall be installed on the floor and ceiling or rear wall of the compartment.

## **ADJUSTABLE SHELVING:**

The adjustable shelving as previously specified shall be installed in the apparatus compartmentation, utilizing the unistrut tracking. Each shelf shall be manufactured in a "U" break design, with 2" lip on front and rear of shelf. Each shelf shall be manufactured from a .190 material.





### **PAC TRAC ON REAR WALL:**

Each PAC TRAC on the rear wall as previously specified shall incorporate a PAC TRAC P/N 7000 tool mounting system . The system permits quick, secure installation, relocation, or removal of brackets without the need to drill holes. PAC TRAC is 8-5/8" wide x 7/8" high and ins extruded of 6063-T5 mill finish aluminum.

NOTE: Tool mounts are not included.

### **HINGED TOOL BOARDS:**

Each hinged PAC TRAC SO74-350 tool board as previously specified shall be feature dual sided PAC TRAC. Each board shall be up to 17" high x 50" wide. The hinge and lock assembly shall utilize PAC PM1000 components. Each board shall lock in the stowed and open position.

Each board shall incorporate a highly reflective red and fluorescent yellow green stripe reflective stripe on each side at the top and bottom 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 1/2" thick PT2E polypropylene sheet stock. This material shall be non-corrosive stress relieved thermo-plastic and U.V. stabilized for maximum protection.

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

partitions interlock with one another and are welded to each other as well as to the walls of the tank.

### FILL TOWER AND COVER

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

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

### SUMP

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

### OUTLETS

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

### MOUNTING

The UPF Poly Tank IIE shall rest on the body cross members with an unsupported area not to exceed 530 sq. inches on tanks up to 40" in height. On tanks over 40" in height, an unsupported area of not

more than 400 sq. inches must be maintained. All tanks shall be isolated from the cross members through the use of hard rubber strips with, a minimum thickness and width dimension of .250 x 2" and a minimum Rockwell hardness of 60 durometer. Additionally, the tank must be supported around the entire bottom outside perimeter and captured both front and rear as well as side to side to prevent the tank from shifting during vehicle operation. A picture frame type cradle mount shall be utilized with a minimum of 2" x 2" x .250 structural material.

Although the tank is designed on the free-floating suspension principle, it shall be required that the tank have hold down restraints half way between the front and the rear of the tank. These restraints shall be made of 3" x 3" x 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 seven (7) years or 50,000 miles after delivery of such vehicle. Such defective part or parts will be repaired or replaced free of charge and without charge for installation to the original purchaser.

Items specifically covered are:

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

Items excluded are:

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

- Normal wear, abuse, accident, negligence or un-approved alteration of original parts.

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

Alexis Fire Equipment reserves the 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 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:**

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.

## **BATTERY CHARGER/AIR COMPRESSOR:**

One (1) Progressive Dynamics PD2140 battery charger shall be installed on the vehicle. The unit shall be located in the L1 compartment.

The PD2140 is a 40-amp Electronic Marine Converter/Charger capable of charging up to three separate banks of batteries at the same time. It incorporates a microprocessor that constantly monitors battery voltage, then automatically selects one of four operating modes to ensure safe, rapid recharging cycles. The Storage Mode and the Equalize Mode of operation ensures minimum battery gassing and water loss while preventing battery stratification and sulfation. All Intelli-Power chargers are designed to meet the stringent requirements of the Marine environment and are UL listed for safety. A digital meter displays current, voltage, operation mode, blown fuse indication, and battery type.

One (1) Viair Model 460C air compressor shall be installed on the vehicle. The air compressor is a fully automatic system which is powered from the chassis battery bank through the PD2140 charger system.

## **KUSSMAUL SUPER AUTO EJECT SHORELINE CONNECTION - 120V:**

One (1) Kussmaul super auto eject Model 091-55-20-120 with a standard yellow weather cover shall be installed on the apparatus. The super auto eject is a completely sealed automatic power line disconnect. One (1) 120-Volt shoreline shall be supplied between the fire station power and the apparatus.

The shoreline connection shall be located behind the cab on the left side, below the preconnect module.





### **MASTER SWITCH:**

A 12 Volt On/Off Rocker switch shall be installed. 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 black textured composite material. The console shall incorporate the switch row and two (2) slots, one (1) for the electronic siren and one (1) slot for the radio. The console shall also include two (2) cup holders.

### **MAP/BINDER STORAGE:**

There shall be a map/binder storage area incorporated into the console at the rear. The storage area shall incorporate one (1) divider, providing two (2) slots for map/binder storage.

### **RADIO PROVISIONS:**

One (1) customer supplied single head radio provision shall be provided in the chassis cab. The cutout shall accommodate the radio make and model specified and shall include a bezel specific to the radio specified.

### **RADIO WIRING:**

Radio wiring shall be provided for the customer supplied and installed radio. The wiring shall include power and ground leads, battery direct and master switched.

### **ANTENNA:**

One (1) Alexis Fire Equipment supplied antenna base, for use with an NMO type antenna, shall be mounted on the cab roof. The antenna base shall be a Motorola base designed for either thick or thin roof material as appropriate for the application and shall include a custom length of RG58 A/U cable with no connector at the radio end of the cable. The cable shall terminate at the center console area.

The radio make and model shall be: \_\_\_\_\_

### **TIRE PRESSURE MONITORING DEVICE:**

One (1) set of Real Wheels LED Air Guard tire pressure indicators shall be shipped loose with the completed apparatus. Features and benefits of the LED Air Guards include

- Safety – Improper tire pressure has a detrimental effect on handling, braking and control.
- Longer Tire Life – According to the D.O.T., 95% of all premature tire wear is caused by underinflation.
- Self-calibrating – LED AirGuard Set & Go memorizes pressure when initially installed and can be easily recalibrated by simply removing and reinstalling.
- Improved Fuel Economy – Proper tire inflation can save an estimated 3% to 5% in fuel costs.

### **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 to the front of the apparatus. Each zone shall have an upper and lower warning level.

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

### **LED LIGHTBAR:**

One (1) Whelen Model F4N2VLED 55" LED lightbar 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):**

Two (2) Tecniq Model K60-RR00-1 Red LED warning lights shall be mounted on the front cab face, one (1) on each side. These lights shall be switched from the in cab switch panel. These lights fill the requirements of Zone A Lower.

Each light shall be mounted utilizing a chrome plated flange.

**WARNING LIGHTS (SIDE):**

One (1) Tecniq Model K60-RR00-1 Red LED warning light shall be mounted on the right (officer's) side of the cab. The light shall be switched from the in cab switch panel. The light fills the requirements of Zone B Lower.

One (1) Tecniq Model K60-RR00-1 Red LED warning light shall be mounted on the left (driver's) side of the cab. The light shall be switched from the in cab switch panel. The light fills the requirements of Zone D Lower.

The rub rails on each side of the body shall incorporate integral outward facing Red LED strip lights. In addition to the Red LED strip light, the rub rail on each side ahead of the rear wheels shall incorporate one (1) TecNiq E03-D001-1 LED light. These lights shall be switched from the in cab switch panel.

In addition to the Tecniq Red Eon LED light in the rub rail ahead of the rear wheels on each side, one (1) additional Tecniq Red Eon LED light shall be provided in the rub rail behind the rear wheels on each side. These lights shall be switched from the in cab switch panel.

Each cab side light shall be mounted utilizing a chrome plated flange.

**WARNING LIGHTS (SIDE):**

One (1) Tecniq Model K90-RR00-1 Red LED warning light shall be mounted on the right (officer's) side of the vehicle in the upper area. The light shall be switched from the in cab switch panel.

One (1) Tecniq Model K90-RR00-1 Red LED warning light shall be mounted on the left (driver's) side of the vehicle in the upper area. The light shall be switched from the in cab switch panel.

These lights fill the requirements of Zones B & D Upper.

Each light shall be mounted utilizing a chrome plated flange.

**WARNING LIGHTS (REAR UPPER):**

Two (2) Tecniq Model K90-RR00-1 Red LED lights shall be mounted on the rear of the vehicle, in the upper area. The lights shall be switched from the in cab switch panel. These lights fill the requirements of Zone C Upper.

Each light shall be mounted utilizing a chrome plated flange.

#### **WARNING LIGHTS (REAR):**

Two (2) Tecniq Model K60-RR00-1 Red LED warning 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.

Each light shall be mounted utilizing a chrome plated flange.

#### **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 chrome bezel.

#### **ELECTRONIC SIREN:**

One (1) Whelen Model 295SLSA1 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) Whelen Model SA315 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.

#### **REAR LICENSE PLATE BRACKET:**

There shall be a lighted license plate bracket mounted on the rear of the vehicle. The light shall be a L11 Series LED light.

### **ENGINE COMPARTMENT LIGHT:**

The engine compartment shall incorporate one (1) T41 Series 12-volt LED light. The light shall be switched with the pump panel lights.

### **PUMP COMPARTMENT LIGHT:**

One (1) 5" 12-volt 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 cab door. All ground area lighting shall be controlled by the master switch and shall be switched with the parking brake.

In addition to the 5" lights, clear LED strip lights shall be provided integral to the rub rails on each side. The strip lights shall face downward and be activated with the balance of the undercarriage lighting.

### **FIRETECH 12-VOLT LED SCENE LIGHT(S):**

Two (2) FireTech FT-MB-2.36-FT-\* 40" Double Stack 38,016 lumen LED bar scene light(s) shall be mounted in the specified location(s). The lights shall be switched from the in-cab switching station.

Each Firetech Hi Viz scene light bar shall be surface mounted on the top of the body in the specified location.

Each Firetech Hi-Viz scene light shall be white in color.

SIDE SCENE LIGHT LOCATION(S): One (1) Each Side

### **FIRETECH 12-VOLT LED SCENE LIGHT(S):**

Two (2) FireTech FT-MB-2.6-FT-\* 8" 6,336 lumen LED bar scene light(s) shall be mounted in the specified location(s). The lights shall be switched from the in-cab switching station.

Each Firetech Hi-Viz scene light shall be white in color.

REAR SCENE LIGHT LOCATION(S): One (1) Each Side

### **HOSEBED STRIP LIGHTING - LED:**

Two (2) E45 Series LED Strip lights shall be provided at the front of the apparatus hose bed. The lights shall be switched with the parking brake.

### **12 VOLT BROW LIGHT - LED:**

One (1) 21" FireTech Model FT-MB-2.18-FT-\* 19,008 lumen LED light bar shall be mounted above the center of the windshield. The light shall be switched from the in-cab switching console.

Each Firetech Hi-Viz scene light shall be white in color.

### **BACK-UP CAMERA:**

There shall be one (1) Audiovox Color Observation back-up camera system installed on the apparatus. The system includes one (1) 7" color video monitor, monitor mount, through the bumper mounted color camera, three (3) camera input receiver, and camera cable.

### **BRACKETING:**

### **INTERMEDIATE REAR STEP:**

A 43" wide intermediate rear step constructed of 12 gauge star punch stainless steel material shall be located at the rear of the apparatus below the hose bed. The step shall be 8" deep.

The intermediate rear step shall incorporate a cutout in the center for backup camera mounting, if applicable.

### **GRAB HANDLES:**

Two (2) 8.5" knurled bright stainless steel 1¼" O.D. grab handles shall be installed at the on the top of

the hose bed taper at the rear of the apparatus, one (1) each side.

Each grab handle shall have a natural stainless steel finish

### **GRAB HANDLES:**

Two (2) 12" knurled bright stainless steel 1¼" O.D. grab handles shall be installed at the on the face of the rear intermediate step, outboard on each side

Each grab handle shall have a natural stainless steel finish

### **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:**

### **PAINT WARRANTY:**

The apparatus shall be covered by a ten (10) 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

### **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 with 6" reflective Scotchlite striping.

The reflective striping shall be white in color.

### **SHADED 'S':**

There shall be a shaded 'S' design within the reflective stripe on each side of the apparatus.

### **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 45° angle.

The striping shall be applied in the following locations: Full height on the rear of the compartments on each side and above the rear compartment door.

The striping shall be single color alternating between red #3992 and fluorescent yellow-green #3983.

## **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).

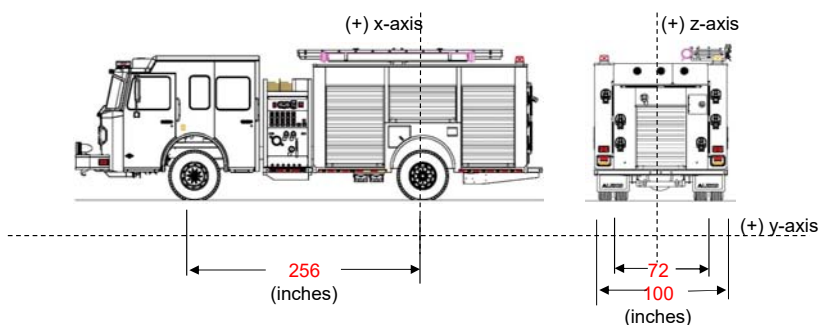
Two (2) 10' Length(s) of 6" diameter hard suction hose, coupled 6" LHF x 6" RLM. (Not rated for hydrants)

## **NFPA EQUIPMENT CLARIFICATION:**

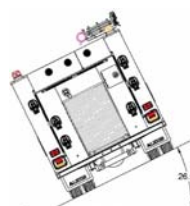
Any equipment specified in the "Minor Equipment" section (e.g. hose, nozzles, adapters, AED, traffic cones, traffic safety vests, etc.) of NFPA 1901 for each apparatus classification (see below) which is not specified in this proposal shall be considered to be customer supplied and installed.

<b>Apparatus Type</b>	<b>NFPA Section</b>
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

3/18/2024



Contract No:	2648
Proposal Name:	Alexis Fire Equipment
Calculated By:	C. Shuck
Revision:	0
Type of Chassis:	International HV-607 4-dr
Type of Pump:	Darley PSM 1250 gpm
Cab to Axle:	144.9
Tank Capacity:	1000 Water





## HOSE CAPACITIES

DWG NO.

EQ-B96

3/18/2024

Customer Alexis Fire Equipment  
Calculated By C. ShuckContract No. 2648  
Rev. No. 0**HOSE BED**Length 126  
Width 69  
Height 12  
Cu. Ft. 60.38 0.00Total 60.38Hose  
Size  
Amount  
DF  
Cu. Ft.

0	0	0	0	0
0.00	0.00	0.00	0.00	0.00

Total 0.00

Need 0.00

**MATTYDALES**Length 73 73  
Width 4.5 4.5  
Height 27 27  
Cu. Ft. 5.13 5.13 0.00Total 10.27

Hose

Size 1 3/4 1 3/4  
Amount 200 200  
DF 26 26 0  
Cu. Ft. 3.01 3.01 0.00Total 6.02**CARTRIDGE LAYS**Length  
Width  
Height  
Cu. Ft. 0.00 0.00 0.00Total 0.00

Hose

Size  
Amount  
DF 0 0 0  
Cu. Ft. 0.00 0.00 0.00Total 0.00**HOSE TRAYS**Length  
Width  
Height  
Cu. Ft. 0.00 0.00 0.00Total 0.00

Hose

Size  
Amount  
DF 0 0 0  
Cu. Ft. 0.00 0.00 0.00Total 0.00**HOSE WELLS**Length  
Width  
Height  
Cu. Ft. 0.00 0.00 0.00Total 0.00


Hose

Size  
Amount  
DF 0 0 0  
Cu. Ft. 0.00 0.00 0.00Total 0.00**Standard Hose Dimensions per NFPA (2003 Edition)**

1 3/4" lays 3 1/4" wide	DF=	26	1" FORESTRY lays 1 3/4" wide	DF=	10
2" (ANGUS) lays 3 3/4" wide	DF=	32	1 1/2" FORESTRY 2 1/2" wide	DF=	14
2 1/2" lays 4 1/2" wide	DF=	41			
3" lays 5 1/4" wide	DF=	50			
4" lays 6 1/2" wide	DF=	58			
5" lays 8" wide - Angus	DF=	96			
5" lays 8-1/2" wide - Cotton	DF=	102			
6" lays 9 1/2" wide	DF=	108			

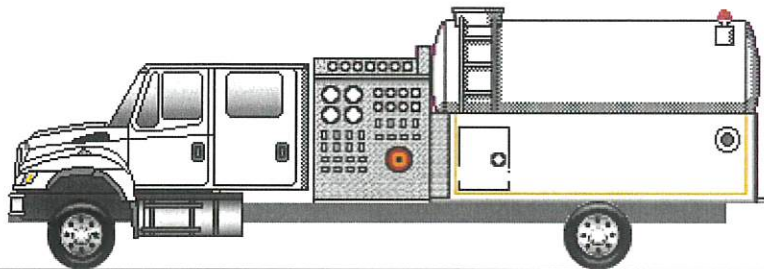
	COMPARTMENT SPACE CALCULATOR		DWG NO.	EQ-B96
				3/18/2024
Department Name:	Alexis Fire Equipment			
		Calc. By:	C. Shuck	
Contract Number:	2648	Rev. Number:		
Compartment	Width	Height	Depth	Cubic Feet
L1 FORWARD	43.5500	67.0000	12.0000	20.2628
L1 REARWARD	24.6250	67.0000	26.0000	24.8245
L2	72.8500	34.6250	26.0000	37.9532
L3	59.9250	67.0000	26.0000	60.4105
R1 FORWARD	43.5500	67.0000	12.0000	20.2628
R1 REARWARD	24.6250	67.0000	26.0000	24.8245
R2	72.8500	34.6250	26.0000	37.9532
R3	59.9250	67.0000	26.0000	60.4105
REAR UPPER	43.0000	30.8375	12.0000	9.2084
REAR LOWER	43.0000	35.4125	30.0000	26.4364
TOTAL in CUBIC FT.				322.55

**Prepared For:**  
 ALEXIS FIRE EQUIPMENT  
 DIRK JORDAN  
 109 E Broadway St.  
 Alexis, IL 61412-5041  
 (800)322 - 2284  
 Reference ID: New Berlin FD

*Alexis®*   
**AS SOLD**  
 Date 7-22-22  
 Customer Init. SRF

**Presented By:**  
 NORTH CENTRAL INTL LLC  
 Brent J Simon  
 5791 STATE HIGHWAY 29 S  
 ALEXANDRIA MN 56308 - 6029  
 (320)762-8126

Thank you for the opportunity to provide you with the following quotation on a new International truck. I am sure the following detailed specification will meet your operational requirements, and I look forward to serving your business needs.



**Model Profile**  
**2024 HV607 SBA (HV607)**

<b>AXLE CONFIG:</b>	4X2
<b>APPLICATION:</b>	Tank (Emergency)
<b>MISSION:</b>	Requested GVWR: 44000. Calc. GVWR: 46000. Calc. GCWR: 80000 Calc. Start / Grade Ability: 25.93% / 3.59% @ 55 MPH Calc. Geared Speed: 68.2 MPH
<b>DIMENSION:</b>	Wheelbase: 256.00, CA: 145.00, Axle to Frame: 65.00
<b>ENGINE, DIESEL:</b>	{Cummins L9 360} EPA 2021, 360HP @ 2200 RPM, 1150 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 359 Peak HP (Max)
<b>TRANSMISSION, AUTOMATIC:</b>	{Allison 3000 EVS} 5th Generation Controls, Close Ratio, 5-Speed with Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, Max, GVW N/A
<b>CLUTCH:</b>	Omit Item (Clutch & Control)
<b>AXLE, FRONT NON-DRIVING:</b>	{Meritor MFS-16-143A} Wide Track, I-Beam Type, 16,000-lb Capacity
<b>AXLE, REAR, SINGLE:</b>	{Meritor RS-30-185} Single Reduction, 30,000-lb Capacity, T Wheel Ends Gear Ratio: 5.38
<b>CAB:</b>	Conventional 6-Man Crew Cab
<b>TIRE, FRONT:</b>	(2) 315/80R22.5 Load Range L HAU 3 WT (CONTINENTAL), 480 rev/mile, 68 MPH, All-Position
<b>TIRE, REAR:</b>	(4) 315/80R22.5 Load Range L HAU 3 WT (CONTINENTAL), 480 rev/mile, 68 MPH, All-Position
<b>SUSPENSION, REAR, SINGLE:</b>	31,000-lb Capacity, Vari-Rate Springs, with 4500-lb Capacity Auxiliary Rubber Springs
<b>FRAME REINFORCEMENT:</b>	Full Outer C-Channel, Heat Treated Alloy Steel (120,000 PSI Yield), 10.813" x 3.892" x 0.312" (274.6mm x 98.8mm x 7.9mm), 480.0" (12192mm) OAL
<b>PAINT:</b>	Cab schematic 209WL Location 1: 9219, Winter White (Std) Location 2: 2570, Viper Red (Prem) Chassis schematic N/A

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
HV60700	Base Chassis, Model HV607 SBA with 256.00 Wheelbase, 145.00 CA, and 65.00 Axle to Frame.	6136/3644	9780
1570	TOW HOOK, FRONT (2) Frame Mounted	8/0	8
1ANA	AXLE CONFIGURATION {Navistar} 4x2	-160/-153	-313
	<u>Notes</u> : Pricing may change if axle configuration is changed.		
1CBU	FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.125" x 3.580" x 0.312" (257.2mm x 90.9mm x 8.0mm); 480.0" (12192) Maximum OAL	159/304	463
1GBP	FRAME REINFORCEMENT Full Outer C-Channel, Heat Treated Alloy Steel (120,000 PSI Yield), 10.813" x 3.892" x 0.312" (274.6mm x 98.8mm x 7.9mm), 480.0" (12192mm) OAL	513/629	1142
1MDP	BUMPER, FRONT Contoured, Stainless Steel, Polished	-20/2	-18
1MEJ	FRAME, SPECIAL EFFECTS Dimple on Left and Right Top Flange of Frame Rail to Reference Rear Axle Centerline	0/0	0
1UAN	FRAME EXTENSION, FRONT Integral; 27" In Front of Grille, with Outer C-Channel Reinforcement	196/-21	175
1WGS	WHEELBASE RANGE 189" (480cm) Through and Including 256" (650cm)	271/-271	0
2ARU	AXLE, FRONT NON-DRIVING {Meritor MFS-16-143A} Wide Track, I-Beam Type, 16,000-lb Capacity	148/0	148
3ADE	SUSPENSION, FRONT, SPRING Parabolic Taper Leaf, Shackle Type, 16,000-lb Capacity, with Shock Absorbers	44/0	44
4091	BRAKE SYSTEM, AIR Dual System for Straight Truck Applications	0/0	0
	<u>Includes</u> : BRAKE LINES Color and Size Coded Nylon : DRAIN VALVE Twist-Type : GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster : PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel : PARKING BRAKE VALVE For Truck : QUICK RELEASE VALVE On Rear Axle for Spring Brake Release: 1 for 4x2, 2 for 6x4 : SPRING BRAKE MODULATOR VALVE R-7 for 4x2, SR-7 with relay valve for 6x4/8x6		
4AZS	AIR BRAKE ABS {Bendix AntiLock Brake System} 4-Channel (4 Sensor/4 Modulator) Electronic Stability Program, with Automatic Traction Control	6/2	8
4EBS	AIR DRYER {Bendix AD-9} with Heater	21/7	28
4EXT	BRAKE CHAMBERS, REAR AXLE {Bendix EverSure} 36/36 SqIn Spring Brake	0/23	23
4EXV	BRAKE CHAMBERS, FRONT AXLE {Bendix} 24 SqIn	4/0	4
4GBM	BRAKE, PARKING Manual Push-Pull Pneumatic Parking Brake	0/0	0
4LAA	SLACK ADJUSTERS, FRONT {Haldex} Automatic	14/0	14
4LGA	SLACK ADJUSTERS, REAR {Haldex} Automatic	0/16	16
4SPA	AIR COMPRESSOR {Cummins} 18.7 CFM	0/0	0
4VKC	AIR DRYER LOCATION Mounted Inside Left Rail, Back of Cab	16/5	21



<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
4VKG	AIR TANK LOCATION (2) Mounted Under Battery Box, Outside Left Rail, Under Cab	3/1	4
4WXX	DRAIN VALVE {Bendix DV-2} (1) Automatic, with Heater, with (2) Berg Pull Chains, for Air Tank	2/0	2
4XCZ	BRAKES, REAR {Meritor 16.5X7 P} Air S-Cam Type, Cast Spider, Cast Shoe, Double Anchor Pin, Includes Greaseable and Zinc Coated Anchor Pins, Size 16.5" X 7", 38,000-lb Capacity per Axle	0/106	106
4XDT	BRAKES, FRONT {Meritor 16.5X6 Q-PLUS CAST} Air S-Cam Type, Cast Spider, Fabricated Shoe, Double Anchor Pin, Size 16.5" X 6", 20,000-lb Capacity	33/0	33
5710	STEERING COLUMN Tilting and Telescoping	18/1	19
5CAW	STEERING WHEEL 4-Spoke; 18" Dia., Black	0/0	0
5PTB	STEERING GEAR (2) {Sheppard M100/M80} Dual Power	100/-4	96
6DGC	DRIVELINE SYSTEM {Dana Spicer} SPL170, for 4x2/6x2	5/33	38
7BEU	AFTERTREATMENT COVER Aluminum	9/2	11
7BMG	EXHAUST SYSTEM Horizontal Aftertreatment System, Frame Mounted Right Side Under Cab, for Single Long Horizontal Tail Pipe	73/13	86
7SCP	ENGINE EXHAUST BRAKE for Cummins ISB/B6.7/ISL/L9 Engine with Variable Vane Turbo Charger	0/0	0
7WBZ	TAIL PIPE (1) Horizontal, Long, Exits Right Side Outside of Body at Rear Wheels	0/0	0
8000	ELECTRICAL SYSTEM 12-Volt, Standard Equipment	0/0	0
	<u>Includes</u>		
	: DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab		
	: HAZARD SWITCH Push On/Push Off, Located on Instrument Panel to Right of Steering Wheel		
	: HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever		
	: PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light		
	: STARTER SWITCH Electric, Key Operated		
	: STOP, TURN, TAIL & B/U LIGHTS Dual, Rear, Combination with Reflector		
	: TURN SIGNAL SWITCH Self-Cancelling for Trucks, Manual Cancelling for Tractors, with Lane Change Feature		
	: WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays), Integral with Turn Signal Lever		
	: WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted		
	: WIRING, CHASSIS Color Coded and Continuously Numbered		
8518	CIGAR LIGHTER Includes Ash Cup	1/0	1
8718	POWER SOURCE Cigar Type Receptacle without Plug and Cord	1/0	1
8GXK	ALTERNATOR {Leece-Neville BLP4006HN} Brushless, 12 Volt, 325 Amp Capacity, Pad Mount, with Remote Sense	17/0	17
8HAB	BODY BUILDER WIRING Back of Day Cab at Left Frame or Under Sleeper, Extended or Crew Cab at Left Frame; Includes Sealed Connectors for Tail/Amber Turn/Marker/ Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn	2/0	2
8MSG	BATTERY SYSTEM {Fleetrite} Maintenance-Free, (3) 12-Volt 1980CCA Total, Top Threaded Stud	35/18	53

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
8RMZ	SPEAKERS (2) 6.5" Dual Cone Mounted in Both Doors, (2) 5.25" Dual Cone Mounted in Both B-Pillars	6/2	8
8RPP	ANTENNA Shark Fin, Roof Mounted	1/0	1
8RPS	RADIO AM/FM/WB/Clock/Bluetooth/USB Input/Auxiliary Input	3/0	3
8THB	BACK-UP ALARM Electric, 102 dBA	0/3	3
8TPA	DATA RECORDER Includes Display Mounted in Overhead Console	2/0	2
8VAY	HORN, ELECTRIC Disc Style	0/0	0
8WGL	WINDSHIELD WIPER SPD CONTROL Force Wipers to Slowest Intermittent Speed When Park Brake Set and Wipers Left on for a Predetermined Time	0/0	0
8WJN	BATTERY BOX Aluminum, with Plastic Cover, 30" Wide, 2-4 Battery Capacity, Mounted Left Side Under Cab	-16/-3	-19
8WPH	CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade	0/0	0
8WPZ	TEST EXTERIOR LIGHTS Pre-Trip Inspection will Cycle all Exterior Lamps Except Back-up Lights	0/0	0
8WRB	HEADLIGHTS ON W/WIPERS Headlights Will Automatically Turn on if Windshield Wipers are turned on	0/0	0
8WWJ	INDICATOR, LOW COOLANT LEVEL with Audible Alarm	0/0	0
8WXG	STARTING MOTOR {Mitsubishi Electric Automotive America 105P} 12-Volt, with Soft-Start	10/0	10
8XAH	CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III with Trip Indicators, Replaces All Fuses	0/0	0
8XGT	TURN SIGNALS, FRONT Includes LED Side Turn Lights Mounted on Fender	0/0	0
8XHR	POWER SOURCE, ADDITIONAL Auxiliary Power Outlet (APO) with USB Port, Located in the Instrument Panel	1/0	1
8XKM	SWITCH, AIR HORN, PASSENGER Fire Truck Application; Momentary Switch Located in Instrument Panel Close to Passenger, Driver Also To Activate Switch with Lanyard	0/0	0
8XNY	HEADLIGHTS Halogen	0/0	0
9585	FENDER EXTENSIONS Rubber	6/0	6
9AAB	LOGOS EXTERIOR Model Badges	0/0	0
9AAE	LOGOS EXTERIOR, ENGINE Badges	0/0	0
9HBM	GRILLE Stationary, Chrome	0/0	0
9HBN	INSULATION, SPLASH PANELS for Sound Abatement	2/0	2
9WBC	FRONT END Tilting, Fiberglass, with Three Piece Construction, for WorkStar/HV	0/0	0
9WBT	GRILLE EMBER SCREEN Mounted to Grille and Cowl Tray to Keep Hot Embers out of Engine and HVAC Air Intake System	3/0	3
10209	PAINT SCHEMATIC, PT-1 Two Tone, Design 209.	0/0	0
10761	PAINT TYPE Base Coat/Clear Coat, 1-2 Tone	0/0	0

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
10769	PAINT CLASS Premium Color	0/0	0
10AGB	COMMUNICATIONS MODULE Telematics Device with Over the Air Programming; Includes Five Year Data Plan and International 360	1/0	1
10BAE	LABEL, DEF "DEF ONLY"	0/0	0
10WCY	SAFETY TRIANGLES	6/0	6
11001	CLUTCH Omit Item (Clutch & Control)	0/0	0
12703	ANTI-FREEZE Red, Extended Life Coolant; To -40 Degrees F/ -40 Degrees C, Freeze Protection	0/0	0
12926	RADIATOR HOSES Silicone; Molded	0/0	0
12ESP	ENGINE, DIESEL {Cummins L9 360} EPA 2021, 360HP @ 2200 RPM, 1150 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 359 Peak HP (Max)	578/-14	564
12THT	FAN DRIVE {Horton Drivemaster} Two-Speed Type, Direct Drive, with Residual Torque Device for Disengaged Fan Speed	0/0	0
	<u>Includes</u> : FAN Nylon		
12UWZ	RADIATOR Aluminum, Cross Flow, Front to Back System, 1228 SqIn, with 1167 SqIn Charge Air Cooler, Includes In-Tank Oil Cooler	21/-3	18
	<u>Includes</u> : DEAERATION SYSTEM with Surge Tank : HOSE CLAMPS, RADIATOR HOSES Gates Shrink Band Type; Thermoplastic Coolant Hose Clamps : RADIATOR HOSES Premium, Rubber		
12VBC	AIR CLEANER Single Element	0/0	0
12VJC	EMISSION, CALENDAR YEAR {Cummins L9} EPA, OBD and GHG Certified for Calendar Year 2022	0/0	0
12VXT	THROTTLE, HAND CONTROL Engine Speed Control; Electronic, Stationary, Variable Speed; Mounted on Steering Wheel	0/0	0
12WZD	CARB IDLE COMPLIANCE Engine Shutdown System Exempt Vehicles, Complies with California Clean Air Regulations	0/0	0
12WZY	CARB EMISSION WARR COMPLIANCE for Cummins L9 Engines	0/0	0
12XBM	ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls and Starter Lockout, with Ignition Switch Control, for Cummins B6.7 and L9 Engines	0/0	0
13AUL	TRANSMISSION, AUTOMATIC {Allison 3000 EVS} 5th Generation Controls, Close Ratio, 5-Speed with Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, Max, GVW N/A	239/44	283
13WET	TRANSMISSION SHIFT CONTROL Column Mounted Stalk Shifter, Not for Use with Allison 1000 & 2000 Series Transmission	1/0	1
13WLP	TRANSMISSION OIL Synthetic; 29 thru 42 Pints	0/0	0
13WUZ	ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS), Fire/ Pumper, Tank, Aerial/Ladder, Package Number 198, Includes J1939 Based Auto Neutral	0/0	0

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
13WYU	SHIFT CONTROL PARAMETERS {Allison} 3000 or 4000 Series Transmissions, Performance Programming	0/0	0
13XAM	PTO LOCATION Dual, Customer Intends to Install PTO at Left and/or Right Side of Transmission	0/0	0
14ASB	AXLE, REAR, SINGLE {Meritor RS-30-185} Single Reduction, 30,000-lb Capacity, T Wheel Ends . Gear Ratio: 5.38	0/277	277
	<u>Notes</u> : Axle Lead Time is 60 Days		
14VAJ	SUSPENSION, REAR, SINGLE 31,000-lb Capacity, Vari-Rate Springs, with 4500-lb Capacity Auxiliary Rubber Springs	0/132	132
15924	FUEL TANK STRAPS Bright Finish Stainless Steel	0/0	0
15DYR	DEF TANK 9.5 US Gal (36L) Capacity, Frame Mounted Outside Left Rail, Back of Cab	3/14	17
15LNS	FUEL/WATER SEPARATOR {Racor 400 Series} 12 VDC Electric Heater, Includes Pre-Heater, with Primer Pump, Includes Water-in-Fuel Sensor, Mounted on Engine	-2/-3	-5
15SVN	FUEL TANK Top Draw, Non-Polished Aluminum, 26" Dia, 70 US Gal (265L), Mounted Left Side, Back of Cab	2/29	31
16196	CAB Conventional 6-Man Crew Cab	433/217	650
16564	HEATER SHUT-OFF VALVES (1) Ball Valve Type, Supply Line	5/0	5
16975	HEATER HOSES Silicone	0/0	0
16BAM	AIR CONDITIONER with Integral Heater and Defroster	56/0	56
16GED	GAUGE CLUSTER Base Level; English with English Electronic Speedometer	0/0	0
	<u>Includes</u> : GAUGE CLUSTER DISPLAY: Base Level (3" Monochromatic Display), Premium Level (5" LCD Color Display); Odometer, Voltmeter, Diagnostic Messages, Gear Indicator, Trip Odometer, Total Engine Hours, Trip Hours, MPG, Distance to Empty/ Refill for : GAUGE CLUSTER Speedometer, Tachometer, Engine Coolant Temp, Fuel Gauge, DEF Gauge, Oil Pressure Gauge, Primary and Secondary Air Pressure : WARNING SYSTEM Low Fuel, Low DEF, Low Oil Pressure, High Engine Coolant Temp, Low Battery Voltage (Visual and Audible), Low Air Pressure (Primary and Secondary)		
16HCL	SEATBELT WARNING PREWIRE Includes Seat Belt Switches and Seat Sensors for all Belted Positions in the Cab and a Harness Routed to the Center of the Dash for the Aftermarket Installation of the Data Recorder and Seatbelt Indicator Systems, for 4 to 6 Seat Belts	0/0	0
16HHE	GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} with Black Bezel, Mounted in Instrument Panel	2/0	2
16HKT	IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster	0/0	0
16JJE	SEAT, DRIVER {National 2000} NFPA Compliant, Air Suspension, High Back with Integral Headrest, Vinyl, Isolator, 1 Chamber Lumbar, 2 Position Front Cushion Adjust, -3 to +14 Degree Back Angle Adjust	-14/-3	-17

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
16PPG	SEAT, PASSENGER {National 2000} NFPA Compliant, Air Suspension, High Back with Integral Headrest, Vinyl, Isolator, 1 Chamber Lumbar, 2 Position Front Cushion Adjustment, -3 to +14 Degree Back Angle Adjust	66/30	96
16RDZ	SEAT, REAR {H.O. Bostrom Tanker 400CT} for SCBA with Secure All Locking System, Three Individual Seats on One Riser, Non Suspension, High Back, Vinyl, with Covered Back and International Logo on Headrest	222/53	275
16SDC	GRAB HANDLE, EXTERIOR (2) Chrome, Towel Bar Type, with Anti-Slip Rubber Inserts, for Cab Entry Mounted Left and Right Side at B-Pillar	6/0	6
16SDD	GRAB HANDLE, ADDITIONAL EXT (2) Chrome, Towel Bar Type, with Anti-Slip Rubber Inserts, Mounted Left and Right Side, Rear of Rear Doors, for Crew Cab	5/0	5
16SNU	MIRRORS (2) Aero Pedestal, Power Adjust, Heated, Bright Heads, Black Arms, 6.5" x 14" Flat Glass, Includes 6.5" x 6" Convex Mirrors, for 102" Load Width	0/0	0
	<u>Notes</u> : Mirror Dimensions are Rounded to the Nearest 0.5"		
16SNX	MIRROR, CONVEX, LOOK DOWN Right Side, Bright, 6" x 10.5"	3/0	3
16VCA	SEAT BELT All Red; 4 to 6	0/0	0
16VKD	CAB INTERIOR TRIM Classic, for Crew Cab	0/0	0
	<u>Includes</u> : CONSOLE, OVERHEAD Molded Plastic with Dual Storage Pockets, Retainer Nets and CB Radio Pocket; Located Above Driver and Passenger : DOME LIGHT, CAB Door Activated and Push On-Off at Light Lens, Timed Theater Dimming, Integral to Overhead Console, Center Mounted : SUN VISOR (2) Padded Vinyl; 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Toll Ticket Strap		
16WHJ	HOSE CLAMPS, HEATER HOSE {Breeze} Belleville Washer Type	0/0	0
16WJV	WINDOW, POWER (4) And Power Door Locks, Front and Rear Doors, Left and Right, Includes Express Down Feature	10/0	10
16WSK	CAB REAR SUSPENSION Air Bag Type	0/0	0
16XJN	INSTRUMENT PANEL Flat Panel	0/0	0
16ZHY	ACCESS, CAB Aluminum, Self-Cleaning, Open and Serrated Design, Driver & Passenger Sides, Two Steps per Door, for use with Crew Cab	62/29	91
27DUS	WHEELS, FRONT {Accuride 41730} DISC; 22.5x9.00 Rims, Extra Polish Aluminum, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs	-28/0	-28
28DUS	WHEELS, REAR {Accuride 41730} DUAL DISC; 22.5x9.00 Rims, Extra Polish Aluminum, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs	0/-56	-56
29WLK	WHEEL BEARING, FRONT, LUBE {EmGard FE-75W-90} Synthetic Oil	0/0	0
7792545437	(2) TIRE, FRONT 315/80R22.5 Load Range L HAU 3 WT (CONTINENTAL), 480 rev/mile, 68 MPH, All-Position	82/0	82
7792545437	(4) TIRE, REAR 315/80R22.5 Load Range L HAU 3 WT (CONTINENTAL), 480 rev/mile, 68 MPH, All-Position	0/164	164

**Services Section:**

<u>Code</u>	<u>Description</u>	<u>F/R Wt</u> (lbs)	<u>Tot Wt</u> (lbs)
40128	WARRANTY Standard for HV507, HV50B, HV607 Models, Effective with Vehicles Built July 1, 2017 or Later, CTS-2025A	0/0	0
<b>Total Component Weight:</b>		<b>9432/5269</b>	<b>14701</b>
<u>Code</u>	<u>Description</u>	<u>F/R Wt</u>	<u>Tot Wt</u>
<b>Body/Allied Equipment</b>			
<u>Code</u>	<u>Description</u>	<u>F/R Wt</u>	<u>Tot Wt</u>
<b>Goods Purchased</b>			
<u>Code</u>	<u>Description</u>	<u>F/R Wt</u>	<u>Tot Wt</u>
	Hood Mounted Air Horns	0/0	0
	Steel surcharge	0/0	0
<b>Total Goods Purchased:</b>		<b>0/0</b>	<b>0</b>

The weight calculations included in this proposal are an estimate of future vehicle weight. The actual weight as manufactured may be different from the estimated weight. Navistar, Inc. shall not be liable for any consequences resulting from any differences between the estimated weight of a vehicle and the actual weight.