SPECIFICATIONS

FOR ONE (1)

MOBILE WATER

SUPPLY

APPARATUS

BID DOCUMENT

For:

_____
_____
_____
_____

BID FOR ONE (1) MOBILE WATER SUPPLY FIRE APPARATUS

Sealed Bids Will Be Received Until:

_____

At

_____

Bids Are To Be Mailed To:

_____
_____
_____
_____

INTENT

As per the specifications provided, each manufacturer is invited to submit pricing and delivery for one (1) Mobile Water Supply Fire Apparatus.

Bidders shall reply to the specifications on the forms supplied.

All items in these specifications must be answered indicating compliance or noncompliance. Bidders shall state "Yes" for compliance or state the deviation. Information relating to the deviation may accompany this document including a separate cover letter and shall state the page and section for ease of reference.

The specifications shall be answered on the forms provided or the bid will be disqualified. Each bidder shall submit a set of specifications outlining the exact vehicle proposed.

Other bid forms or the submission of alternates, not detailed in the specifications, shall be cause for disqualification.

It is the intent that the specifications clearly identify the furnishing and delivery of a complete Mobile Water Supply Fire Fighting Apparatus as specified.

Bids submitted will be reviewed and evaluated based on qualifications, bonding, quality programs, irregularities, delivery, and price.

The purchaser shall be the sole determining organization as to the award of the bid, and the lowest price may not necessarily be accepted.

PRICING

One (1) Mobile Water Supply Fire Apparatus as outlined in these bid specifications:

Selling Price: $_____

Applicable Taxes: $_____

Total Proposal Price: $_____

Delivery of the completed vehicle shall be F.O.B. _____ Fire Department within ____ to ____calendar days after the acceptance of the order dependent on chassis delivery.

Note: Pricing provided shall be held firm for a maximum of thirty (30) calendar days.

TENDER EVALUATION

This tender will be evaluated on a points system based on the documents submitted with this tender. Failure to submit requested documents may result in your tender being rejected or 0 points being assigned. Evaluation of points being received in each section is at the discretion of the purchaser / fire department.

1) Insurance Certificate for $25,000,000.00	25 points
2) Business Credit Report Available on Request	10 points
3) ISO Certificate	10 points
4) Length of Time in Business / No prototypes	10 points
5) Professional Engineering Certificate of Staff Member	15 points
6) C.W.B. Welding Certificates	10 points
7) Fire Apparatus Manufacture Association Certificate	10 points
8) Licensed Motor Vehicle Sales Permit	10 points
9) 24 Hour Warranty Policy/ Service within 100 Miles	10 points
10) Tender Meets Specs	25 points
11) Body & Paint Warranty Certificates	25 points
12) Price	10 points
Total	170 points

DEMONSTRATION

An authorized representative of the manufacturer shall provide a demonstration of the completed vehicle. One (1) day of orientation shall be provided and performed by a qualified representative of the manufacturer.

TERMS AND CONDITIONS OF PAYMENT

The chassis shall be paid in full when it is received at the apparatus manufacturer's facilities.

The balance of payment shall be paid upon completion and delivery acceptance.

QUALIFICATION SHEET

All bidders must fill this form out completely. Bids not returned with this form completely filled out will be disqualified.

Any blank spaces or noncompliance with **Mandatory Requirements** could result in the manufacturers bid submittal being disqualified.

REQUIREMENTS

1) The bidder must have been manufacturing fire apparatus continuously, without interruption for a minimum of Twenty (20) years. (**Mandatory Requirement)**

2) The bidder shall have a documented and certified ISO 9001 quality program in place. A copy of the certifications must be included with the bid submittal. The apparatus manufacturer shall provide the name of the ISO provider, as well as the ISO provider's contact information including phone number. (**Mandatory Requirement)**

Comply (Yes/No)

Certificates Attached (Yes/No)

Contact Information Attached (Yes/No)

3) The bidder shall have a quality manual available for inspection by the purchaser (**Mandatory Requirement)**

4) The bidder must indicate that they are the prime contractor for this bid, and that all non-purchased components are not subcontracted.

5) All welding on the apparatus body and plumbing systems must be performed by certified welders. The certificates must be certified in a minimum of Division 2. Copies of the certification must be attached with the bid submittal. (**Mandatory Requirement)**

Comply (Yes/No)

Certificates Attached (Yes/No)

6) The apparatus manufacturer must be a current member of the Fire Apparatus Manufacturers Association (FAMA). A copy of the current year certificate must be attached with the bid submittal.

7) The apparatus manufacturer must provide documentation of having a certified engineer on staff with the bid submittal. **Subcontracted Engineers Shall Not Be Acceptable And Shall Disqualify The Bid** (**Mandatory Requirement)**

8) The manufacturer of the apparatus must supply a Certificate of Insurance proving that they carry a minimum of $25,000,000.00 CDN in product liability insurance. Bids not meeting this requirement will not be accepted. A copy of the certificate shall be included with the bid submittal. **(Mandatory Requirement)**

9) The manufacturer of the apparatus must be registered with Transport Canada to the National Safety Mark Standards. Bids not meeting this requirement will not be accepted. Copies or registration must be attached with the bid submittal. **(Mandatory Requirement)**

Comply (Yes/No)

Certificate Attached (Yes/No)

10) The manufacturer of the apparatus must be certified and in good standing with the Workers Compensation Board. Proof of certification must be supplied with the bid. A manufacturer that is not certified in Factory Manufacturing or not in good standing with their local Workers Compensation Board shall be disqualified (**Mandatory Requirement)**

Comply (Yes/No)

Certificate Attached (Yes/No)

REQUIREMENTS OF THE APPARATUS MANUFACTURER

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, Partnership, or that is a company 100% held in North America.

All chassis, pumps and major components must be manufactured in North America and must be able to supply parts for an emergency vehicle within 48 hours.

Proposals from any manufacturer that is fully or partially owned and/or operated by a Foreign Company, Corporation, Partnership, or that is a company under any type of ownership partnership, or any similar type of agreement will be rejected immediately, and their bid disqualified. **(Mandatory Requirement)**

SERVICE REQUIREMENTS

The bidder shall provide a "24 Hour", "7-Day Per Week" emergency parts and service toll free telephone number. This phone number must be listed on a separate statement included in the bid package, along with the contact's name, business name, address, and phone number of the local service agency, which will service the vehicle after being placed into service. (Mandatory Requirement)

The service agency shall be capable of performing all required service work and shall also have at their disposal the ability to have any required subcontracting work, such as engine, transmission, etc. work performed on behalf of the apparatus manufacturer.

ENGINEERING DRAWINGS

Engineering drawings shall be submitted to the purchaser prior to commencement of the manufacturing process.

This drawing shall show at a minimum the front, left, right and rear views of the vehicle, as it will look at the time of completion.

A copy of this drawing shall be signed and returned to the apparatus manufacturer and become part of the vehicle contract.

BODY MANUAL - ELECTRONIC

Two (2) digitized manual(s) shall be provided for the operation of the complete apparatus. The manual(s) shall include a troubleshooting guide complete with recommended daily, weekly, and annual maintenance procedures.

WEIGHT AND BALANCE CALCULATION

The apparatus, prior to acceptance will be required to meet the vehicle stability of the applicable NFPA or ULC automotive fire apparatus standard.

A calculated center of gravity calculation shall be provided as part of the line drawing supplied with the quote request to ensure the apparatus meets these requirements. The calculated center of gravity shall be no higher than 80 percent of the rear track axle width.

SUB STRUCTURE WARRANTY - 20 YEAR

The substructure shall be warranted for a period of twenty (20) years on the apparatus sub structure for corrosion perforation. **(Mandatory Requirement)**

BODY WARRANTY - 20 YEAR

The apparatus body warranty shall cover the entire body against manufacturer defects for a period of twenty 20 years on aluminum and stainless steel full framed bodies. **(Mandatory Requirement)**

TESTING AND CERTIFICATION

The completed vehicle shall be tested and labeled to CAN/ULC-S515-13 by an independent third-party certification organization.

The third-party organization shall be accredited for testing systems on fire apparatus in accordance with ISO/IEC 17020 or ISO/IEC Guide 65.

The certification organization shall not be owned or controlled by manufacturers or vendors of the apparatus being tested.

The certification organization shall be primarily engaged in certification work and shall not have a monetary interest in the product's ultimate profitability.

The certification organization shall witness all tests and shall refuse to certify any test result for a system if the components do not pass the testing required by this system.

There shall be no conditional, temporary, or partial certification of test results.

Appropriate forms of data sheets shall be provided and used during testing.

Manufacturer's certification **is not** acceptable. **(Mandatory Requirement)**

The manufacturer shall be certified to ISO 9001

The completed vehicle shall undergo, prior to delivery, a two (2) hour road test with all applicable emergency equipment activated. A certification shall be provided to the purchaser outlining the results of this road test.

CARRYING CAPACITY PLATE

A warning label shall be provided in the cab within sight of the driver stating the seating capacity of the cab/crew cab.

Another warning label shall be provided in the cab within sight of the driver that the occupants must be seated and belted.

VEHICLE DIMENSION PLATE

A warning label shall be provided in the cab within sight of the driver stating the following apparatus dimensions:

Height and length in standard and metric measurements.
Gross vehicle weight rating in pounds and kilograms.

DIELECTRIC VOLTAGE TESTING

The wiring and permanently connected devices and equipment shall be subject to a dielectric voltage withstand test of 900 volts for one minute. The testing shall be performed after all body work has been completed. The electric polarity of all permanently wired equipment, cord reels, and receptacles shall be tested to verify that wiring connections have been properly made.

FLUID CAPACITY AND TYPE LABEL

A permanent label shall be provided and shall state the type and quantity of the following fluids used in the vehicle:

Engine Oil
Engine Coolant
Chassis Transmission Fluid
Drive Axle Fluid
Pump Gear Case
Primer Lubricant (If Applicable)

CHASSIS SPECIFICATIONS

A Freightliner four door chassis shall be supplied as per the attached specifications.

ON SPOT AUTO TIRE CHAINS

A set of On Spot automatic tire chains shall be installed at the rear tires. The automatic tire chain system shall be air actuated from the chassis air system and shall be controlled with an activation switch located in the cab within easy reach of the driver.

CONSOLE - PAINTED

There shall be a console installed in the chassis cab with an angled design making it easier to access vital emergency controls. The top of the console shall be easily removable for maintenance and service. The console shall have a storage bin.

One (1) divider shall be installed in the console bin.

There shall be a hinged lid provided on top of the storage bin.

110 VOLT CAB/CREW CAB RECEPTACLE(S)

One (1) 110-volt three prong, duplex straight blade receptacle(s) shall be provided in the cab/crew cab area and connected directly to the shoreline receptacle.

CAB INTERIOR RECEPTACLE TIED TO CAB EXTERIOR RECEPTACLE

The 110-volt receptacle in the cab shall be tied to an existing cab exterior receptacle as specified by the Fire Department.

CHASSIS WHEELS

The chassis wheels shall be an aluminum polished finish from the chassis supplier.

CHROME HUB AND LUG NUT COVERS

The front wheels shall be fitted with chrome baby moon type hub covers.

The rear wheels shall be fitted with chromed "Top Hat" type hub covers.

All front and rear wheel lug nuts shall have chrome lug nut covers installed.

CHASSIS PREPARATION

The chassis shall be carefully inspected for compliance with the required specifications and to assure that it is ready for apparatus construction.

Any components that require relocation or modification shall be done at this time.

CHASSIS EXHAUST MODIFICATIONS

To maintain chassis engine performance, the chassis exhaust shall be modified minimally after any exhaust treatment devices and shall meet the chassis supplier's recommendations. The exhaust shall exit at the curbside of the apparatus before the rear axles and shall be a straight exhaust pipe design.

EXHAUST SYSTEM HEAT SHIELD

Where the chassis exhaust piping passes under or near a body compartment, the exhaust piping shall be shielded utilizing a heat shield manufactured from 1/8" 3003-H22 aluminum checker plate to prevent compartment exposure to radiant heat.

The heat shield shall be mounted to the tail pipe with suitably sized muffler clamps.

FRONT AND REAR MUD FLAPS

Four (4) heavy duty rubber rear mud flaps shall be provided and installed on the apparatus. The mud flaps shall be installed behind the front and rear wheels.

CHAINED IGNITION KEY

The key utilized for the ignition shall be securely chained to either the steering column or the cab dash to prevent loss or removal of the ignition key.

ALUMINUM CHECKER PLATE COVERS

There shall be .125" aluminum checker plate trim installed at the chassis steps. The checker plate shall be easily removable for ease of service and maintenance if required.

BATTERY CHARGER PACKAGE - 18 AMP

The following components shall be installed:

Battery Charger - Kussmaul - Pump Plus 1000 PLC

A Kussmaul Pump Plus 1000 Series Model #091-215-12-PP, 15-amp battery charger and 3-amp Battery Saver shall be installed.

The Pump Plus 1000 with Parasitic Load Compensation (PLC) is a compact, microprocessor controlled, completely automatic, single channel battery charger designed for vehicles with a single battery system. The PLC charger is designed to withstand the shock and vibration encountered by vehicle mounted equipment.
The Battery Saver component shall eliminate drain on vehicle's battery system when vehicle is not in use. The system shall automatically disconnect auxiliary vehicle loads from battery when the charger is energized.
Parasitic Load Compensation feature is designed specially to meet the heavy-duty requirements of emergency vehicles. Parasitic load compensation allows you to input the total number of parasitic load amps on the vehicle. Then the charger will shift the absorption stage set point so the battery voltage will drop to the float voltage when the desired current is reached. This will lead to a longer battery life and no overcharging or overheating.

The charger shall have the following operational specifications:
a) 120 volts AC input at 3.5 amps
b) Battery Charger: 12 volts DC output at 15 amps
c) Battery Saver: 3 amps 12-volt DC output
d) 8 Pin Selector Switch on front panel
e Battery Type: Lead-Acid, Gel Cell, AGM or Odyssey
f) Float / 3-Step
g) Battery Saver ON/OFF
h) Parasitic Load Compensation
i) AC power applied light on front panel.
j) System LED Status Indicator on front panel
k) Dimensions of 9.35" high x 5.9" wide x 4.725" deep and weighs 11 lbs.

Air Compressor - 12V - 100 PSI
The compressor shall be a Kussmaul P/N 091-9-12V 12-volt compressor.

The Auto Pump 12 volt driven air compressor shall ensure that the air brake system is properly pressurized for immediate response of the unit. A pressure switch shall regulate operation and shall automatically sense low air

pressure in the brake system and restore the proper pressure. The unit shall have no interference with the vehicle mounted air compressor. The compact compressor shall have sealed bearings and a 15-amp circuit breaker installed in pressure switch assembly.

The air compressor shall have the following ratings:
1) 100 PSI maximum rating
2) Pre-set at 75 PSI "ON" and 95 PSI "OFF"
3) Adjustable differential range of 20 PSI to 100 PSI
4) Output:
   0.30 SCFM @ 80 PSI
   0.35 SCFM @ 60 PSI
5) Rating: 12 volts at 11 amps

Shoreline Inlet - Kussmaul Super Auto Eject - 20 Amp

A Kussmaul Super Auto Eject Model #091-55-20-120, 20-amp 120-volt shore power assembly, cover, solenoid input wire, power cord, and plug shall be installed. The 12-volt solenoid shall eject the shore power cord away from vehicle path upon sensing engine start, after ejection, the weatherproof cover snaps into position over inlet. The unit shall sequence energizing of an Auto Eject, eliminating terminal arching when connecting and disconnecting power cord.

The unit shall have a waterproof back enclosure with watertight cable fittings, which protect the mechanism from road contamination. A pre-wired 3-foot AC electrical cord and starting sense wire (side wired) shall be installed.

The assembly shall have the following dimensions: 6.17" high x 4.08" wide x 2.8" deep with 4 lb. weight.

Cover color to be yellow.

Other colors available, please specify if otherwise: red, blue, white, gray, black.

Battery Charger Remote Digital Display

The charger shall include a Model #091-199-001 single bar remote digital display.

TRANSPORTATION ROAD SAFETY KIT

The following Transportation Road Safety Kit shall be supplied.

One (1) 2.5 lb. ABC vehicle type fire extinguisher, with mounting bracket.

One (1) standard First Aid Kit shall be provided.

One (1) set of three (3) D.O.T. approved reflective warning road safety triangles shall be supplied with the apparatus.

CAB STEP LIGHTING

Each cab step shall be illuminated by Tecniq P/N E03 LED lights to meet the requirements of NFPA 1901.

CHASSIS CAB DOOR LETTERING

Single color lettering with a background outline shading shall be provided on the cab doors as directed by the Fire Department.

There shall be a one-inch-wide reflective stripe applied to the front of the apparatus. The reflective stripe shall be a 3M Scotchlite product.

There shall be reflective striping applied to the interior chassis cab doors of the apparatus. The reflective stripe shall be a 3M Scotchlite product.

HELMET HOLDERS

The helmet holders shall be Ziamatic Universal Helmet Holders, model UHH-1.

SIDE PUMP HOUSE SLIDE OUT STEP

A heavy-duty non-skid, .125" aluminum checker plate Slide Master slide out step shall be provided at the side pump panel area, installed below the side running board assembly. This step shall have a pull handle and positive type step extension and retraction locks.

SPEAKER WITH VOLUME CONTROL AND MICROPHONE

A Telex Model US600EL low impedance handheld microphone with a push to talk switch shall be mounted on the pump operator panel as per the fire department’s specifications.

The microphone shall be a dynamic omnidirectional handheld type with uniform frequency response from 100 to 7,000 Hz. The case shall be molded of high impact plastic with a black textured finish.

A Newark Model 88F5550 10-Watt flush mounted 5 1/2" diameter speaker shall be provided on the pump panel with wiring to the communications equipment. The speaker shall be designed for exposure to all weather conditions. The speaker shall come with a rotary volume control dial.

A mounting bracket is supplied to provide convenient hang-up when the microphone is not in use.

Speaker w/ volume control Microphone

MICROPHONE COMPARTMENT

A microphone compartment shall be provided at the pump operator's panel.

This microphone compartment shall have a hinged cover.

PUMP HOUSE

The pump house shall be a full frame module constructed from 2" x 2" x .188" and 3" x 3" x .25" (6061-T6 / 6063-T6) heavy-duty structural aluminum extrusions which shall provide maximum strength and durability.

The pump house shall be manufactured separately to allow for movement and flexibility.

The pump house shall be attached to the chassis frame with .25" thick heavy-duty mounting plates and .5" grade 8 cadmium plated bolts with self-locking nuts. A transition bracket with rubber mounts shall be installed in the chassis frame. The pump house shall then be mounted to the rubber mounts.

The front and rear of the pump house shall have 1/8" 3003 H14 Hi Shine checker plate trim.

PUMP INSPECTION DOOR

The pump house interior shall be accessible by an inspection door on the right side. The inspection door shall be constructed from .125" aluminum high shine checker plate. The door shall be fastened to the upper portion of the pump house with stainless steel piano hinges. The locking mechanisms for the door shall be a set of two (2) lift and turn twist lock latches.

HEAT PANS

The bottom of the pump house shall be fitted with a heat pan. The heat pan shall enclose all sides, front, rear and bottom of the pump house.

The heat pan vertical side walls shall be constructed from 1/8" 5083-H321 saltwater grade sheet aluminum and shall be installed to the underside of the pump house.

There shall be dual 12 gauge 5052 H321 aluminum panels that shall be split in the center and removable for access to the pump house components.

Any additional vertical enclosure to properly enclose the heat pan around chassis components shall be with 12 gauge 5052 H321 aluminum.

CONTROL PANEL - SIDE

The pump operator's panel and the right-side pump panel shall be constructed from 1/8" aluminum with a black anti-glare coating. Both the right side and left side pump panels shall be bolted to the pump house for ease of removal.

The pump operator's panel shall be manufactured in a two-tier design.

The bottom/lower tier (portion) shall be screwed into place and can be removable for servicing. The lower level contains all the valve controls, discharges, suctions, drains, etc. All suction and discharge ports exiting through the panels shall be laser cut to provide a smooth exact fit. No cover overlay plates shall be used.

The top tier (portion) of the panel shall be bottom hinged with a stainless-steel piano hinge and shall have two (2) lift and turn twist lock latches located at the top of the panel for pump and gauge servicing. This panel shall contain all gauges and monitoring instruments.

All gauges and controls shall be symmetrically and logically laid out to easily enable the pump operator to monitor all aspects of pump operation.

All valve controls shall be made by use of heavy-duty steel rods, pivots, and Class I operators.

All discharge and auxiliary suction valves shall be mounted behind the panel.

PUMP INSPECTION DOOR

The pump house interior shall be accessible by an inspection door on the right side. The inspection door shall be constructed from .125" aluminum high shine checker plate. The door shall be fastened to the upper portion of the pump house with stainless steel piano hinges. The locking mechanisms for the door shall be a set of two (2) lift and turn twist lock latches. A full height, vertically hinged, black coated inspection door may be supplied if there are minimal discharge and suction inlets on the panel.

MASTER GAUGE TEST PORTS

The pump operator panel shall come with Class 1 P/N 121384 vacuum and pressure testing port.

PUMP BYPASS CONTROL

A Class 1 P/N 105120 brass assembly with chrome plated zinc handle petcock control valve shall be mounted at the pump operator panel to allow tank water to recirculate thru the pump. The port size and plumbing shall be 1/4"

AUXILIARY HEAT EXCHANGER

There shall be an auxiliary heat exchanger mounted on the chassis. The heat exchanger will allow tank water to cool the chassis engine.

The heat exchanger shall be operated by a Class 1 P/N 105120 brass assembled with chrome plated zinc handle petcock control valve. This valve shall be mounted at the pump operator panel. The plumbing to the auxiliary heat exchanger control valve shall be 1/4".

SPEED LAY HOSE BEDS

Two (2) speed lay hose beds shall be provided and installed transversely at the front of the pump house. The speed lay beds shall be slotted to allow for drainage of the hoses.

Two (2) removable trays shall be included in the speed lay hose beds. The trays shall be manufactured from 1/8" 5083-H32 saltwater grade aluminum. The trays shall have slots cut for handholds on each side of the trays. The trays shall be removable from either side of the apparatus.

Stainless steel rollers shall be provided for each side of the speed lay beds to aid in extraction / protection of the discharge hose.

If the pump house is enclosed, an additional 14 gauge polished stainless steel rub plate shall be mounted on the interior of the pump house enclosure wall.

SPEED LAY PLUMBING - 1.5" DISCHARGE

The plumbing on the 1.5" discharge(s) shall be heavy duty piping with Victaulic and Class 1 SBR synthetic rubber hose with stainless steel couplings.

Each discharge shall be equipped with a 90-degree swivel to allow them to be used from either side of the apparatus.

THREAD TYPE - DISCHARGE 1.5"

All 1.5" thread types shall be NPSH.

Akron Style 8820 Swing - Out™ Valve

The valve shall be Akron Brass Style 8820 Swing-Out™ Valves. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts and must be

capable of swinging out of the waterway for maintenance by the removal of six bolts. Products must carry a 10-year manufacturer's warranty.

Valve Actuator

The valves shall have chrome T handle actuators. For chemical and wear resistance a Lamacoid label specifying the discharge shall be inset into the T handle actuator. The label shall be color coded as per NFPA 1901 requirements.

Discharge Gauge - Dual Scale

A 2.5" discharge gauge shall be mounted adjacent to the discharge valve control handle. A removable bright metal or color-coded trim ring shall be supplied.

The gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation.
To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem (no exceptions).

The gauges shall be in dual scale and measure in increments of 0-400 psi and 0-2800 kPa.

Drain Valves

A drain shall be installed at the pump panel. The drain shall have 3/4" Synflex drain lines tied to a 1/4 turn drain valve with high pressure brass fittings.

SPEED LAY TARP

A heavy-duty vinyl tarp cover shall be provided over the speed lay compartments. The vinyl tarp shall be red in color.

PUMP HOUSE RUBBER SEAL

There shall be a rubber foam cell permanently mounted between the pump house and the body for maximum pump house heat retention. The seal shall be mounted vertically down the height of the pump house, one on each side.

RUB RAILS - PUMP HOUSE RUNNING BOARDS - NON-SLIP

Three inch "C" channel aluminum rub rails shall be bolted into place with nylon spacers on the lower framework on the pump house running boards. The rub rail will extend to the outside edges of the running boards for protection from impact damage.

The top surface of the rub rail shall have a non-slip surface meeting the requirements of NFPA 1901 for nonslip walking surfaces.

PUMP HOUSE HEATERS

Two (2) DTAC 210-12 16,000 BTU forced air coolant heaters shall be installed.

The heaters shall be mounted low in the pump house so that the heat will be distributed evenly in the pump house and will keep the drain lines open. An on/off illuminated rocker switch shall be mounted on the pump panel for operation of the heaters.

PUMP PANEL LIGHTS - LED - SIDE PANEL

There shall be a total of four (4) 6.5" x 3" Tecniq E10 clear LED dome lights, (two (2) each side) to adequately illuminate the side pump panels. The lights shall be mounted under a protective hood of the same material as the side pump panels. The lights shall be activated by a switch at the pump operator panel.

PUMP HOUSE INTERIOR LIGHTING- LED

The interior of the pump house shall be illuminated by a total of two (2) 6.5" x 3" Tecniq E10 clear LED dome lights, one (1) on each side. The lights shall be activated by a switch at the pump operator panel.

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

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

The following continuous displays shall be provided:

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

A dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and 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 governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

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

MASTER PRESSURE AND INTAKE GAUGES - DUAL SCALE

Two (2) 4.5" master pump gauges shall be supplied and mounted in close proximity to the throttle, primer, and engine instrumentation. The intake gauge shall be to the left of the discharge gauge. Bright metal trim rings shall be supplied with each gauge.

They shall be fully filled with pulse and vibration dampening Inter lube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation. The Zytel nylon cases shall be temperature compensated with an internal breathing diaphragm to permit fully filled cases and to allow a rigid lens with a distortion free viewing area.

To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

The gauges shall be in dual scale and measure in increments of 0-400 psi and 0-2800 kPa.

WATER TANK VOLUME INDICATOR

Fire Research TankVision Pro model WLA300-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

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

HALE DSD SINGLE STAGE 1250 PUMP - PTO DRIVE

The pump shall be a Hale Pump, Model RSD 1250.

The pump shall be rated at: 5000 Liters per minute at 150 PSI.
1040 Imperial Gallons per minute at 150 PSI
1250 U.S. Gallons per minute at 150 PSI

Pump Assembly

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

The pump shall be driven by a transmission mounted or split drive line power take-off (PTO). The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance within the torque rating of the PTO, truck transmission gears and drive line components.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 500 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Standard 1901. Pump shall be free from objectionable pulsation and vibration.

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

The pump body shall be vertically split on a single plane, for easy removal of impeller assembly, including clearance rings.

Inlet connections shall be configurable for victaulic, flanged, or NST connections for the most reliable connection as required by the apparatus builder.

Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty deep groove ball and angular contact in the gearbox for effective handling of thrust and radial forces. Bearings shall be splash lubricated.

The pump shaft shall have only one mechanical seal. The mechanical seal shall be spring loaded, maintenance free and self-adjusting. Mechanical seals shall be resistant to thermal shock damage. (No exceptions.)

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

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

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

Gearbox

The gearbox shall be manufactured and tested at the pump manufacturer's factory.

Pump gearbox shall be of sufficient size to withstand the required torque of the pump in operating conditions. The gearbox shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shaft shall be of heat-treated chromium steel. It shall withstand the required torque of the engine in pump operating conditions.

All gears, both drive and pump, shall be of the highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated, crown-shaved and hardened, to give an extremely accurate gear for long life, smooth, quiet running and higher load carrying capability. An accurately cut helical design shall be provided for the lowest noise levels. (No exceptions.)

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine, transmission and power take-off selected.

PUMP OPERATION WARNING LABEL

There shall be a warning label mounted on the pump operator's panel that states the following:

Warning: Death or serious injury might occur if proper operating procedures are not followed. The pump operator as well as individuals connecting supply or discharge hoses to the apparatus must be familiar with water hydraulics hazards and component limitations.

HALE PUMP SHAFT SEAL - MECHANCIAL SEAL

The pump shall have the Hale mechanical shaft seal.

PTO PUMP ACTUATION – PUMP AND ROLL

The PTO pump engagement operations shall be controlled and monitored by a solid-state controller. The electronic controller shall have the ability to communicate with the chassis J1939 communication port in order to meet the requirements of NFPA 1901 for pump shift interlock and operation of the pump. The electronic control module shall have 16 built in diagnostic LED lights to allow for efficient maintenance.

Pump shift actuation shall be completed through a cab mounted control panel. The control panel shall be back lit illuminated and come with a locking switch that indicates either “ROAD” or “PUMP” mode. The control panel shall have three green indicator lights, one showing when the pump has been engaged and shall be labelled “PUMP ENGAGED”. Second for when pump is safe for stationary pumping and shall be labelled “OK TO PUMP” remote operator throttle will be operational at this time. Third for when pump is safe for pump and

roll operation and shall be labelled “OK TO PUMP AND ROLL” remote throttle will be disable in this condition.

PUMP ENGAGED light will flash if PTO engagement switch is in PUMP position and required PTO conditions are not met for engagement.

All wiring shall be GXL grade wire, with wire function labelled every 6 inches onto wire. All connections shall have IP67 rated dust and waterproof protection.

Hale ESP Oilless Primer

The priming pump shall be a positive displacement, vane type and electrically driven. This primer shall be a Hale #ESP electric oil-less priming system. One (1) priming control shall both open the priming valve and start the priming motor.

The primer valve shall be connected to the top of both pump volutes making it possible to prime the pump no matter if the pump is in pressure or volume modes. If a front suction is supplied, and additional line shall be connected to the highest point or points between the pump and the inlet thus insuring a complete prime.

PRIMING SYSTEM LABEL

The priming system shall be marked with a label to indicate proper operation.

6" MAIN SUCTION MANIFOLD - STAINLESS STEEL

There shall be a total of two (2) 6" main inlets, one on each side of the pump house.

The plumbing for the two (2) main suction inlets shall be single piece design manufactured from schedule 10 stainless steel with schedule 40 threaded fittings.

The suction manifold shall be bolted to the pump utilizing heavy duty grade 8 bolts for firm vibration free installation. A Victaulic coupler is not acceptable. (**Mandatory Requirement)**

MAIN SUCTION INLET CHROME CAPS

Each inlet shall come with a chrome plated long handled cap.

AUXILIARY SUCTION - ROAD SIDE

One (1) 2-1/2" gated inlet(s) shall be provided at the left side pump panel. The inlet(s) shall come complete with a chrome female swivel threaded adaptor. There shall be a chrome cap with the inlet(s) and the cap shall come with a chain that is attached to the pump operator panel.

The plumbing shall be schedule 10 stainless steel.

A rubber grommet shall enclose the plumbing coming out of the pump panel for maximum heat retention in the pump house. (**Mandatory Requirement)**

Akron Style 8825 Swing - Out™ Valve

The valves shall be Akron Brass Style 8825 Swing-Out™ Valves. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. Products must carry a 10-year manufacturer's warranty.

Valve Actuator

The valve control shall be by a chrome swing handle located near the discharge.

Drain Valves

A drain shall be installed at the pump panel. The drain shall have 3/4" Synflex drain lines tied to a 1/4 turn drain valve with high pressure brass fittings.

INTAKE RELIEF VALVE - HALE

A 2-1/2" Hale flange mounted adjustable suction relief valve shall be provided and installed in the suction side of the pump. The discharge side of the valve shall be plumbed to the area below the running board, away from the pump operator. The relief valve shall have an adjustable working range of 75 PSI to 250 PSI and be pre-set at 125 PSI.

TANK FILL LINE - PUMP TO TANK

There shall be a 2" discharge provided at the pump operator panel for a pump to tank line.

Akron Style 8820 Swing - Out™ Valve

The valve shall be Akron Brass Style 8820 Swing-Out™ Valves. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts and must be

capable of swinging out of the waterway for maintenance by the removal of six bolts. Products must carry a 10-year manufacturer's warranty.

Valve Actuator

The valves shall have chrome T handle actuators. For chemical and wear resistance a Lamacoid label specifying the discharge shall be inset into the T handle actuator. The label shall be color coded as per NFPA 1901 requirements.

DISCHARGE MANIFOLD

All plumbing for the discharge manifold and discharge plumbing shall be schedule 10 stainless steel with schedule 40 threaded fittings. In some cases, heavy duty, high pressure, wire reinforced flexible hose with stainless steel couplings shall be utilized for plumbing connections.

Victaulic couplings shall be used on the plumbing lines to take tension off piping and to permit flexing and movement without damage to the pump and its components.

Heavy duty U-bolt clamps and bracing shall be used on all plumbing lines and connections where required for firm vibration free installation.

TANK SUPPLY LINE

A 4" tank supply line shall be installed from the tank to the pump. A 3" check valve shall be installed in the pump to eliminate the possibility of pressure expanding and damaging the tank.

Butterfly Valve

The valve shall be a 3" manually operated butterfly valve.

Valve Actuator

The valves shall have chrome T handle actuators. For chemical and wear resistance a Lamacoid label specifying the discharge shall be inset into the T handle actuator. The label shall be color coded as per NFPA 1901 requirements.

2.5" DISCHARGE - LEFT SIDE

Two (2) 2.5" gated discharge(s) shall be provided at the left side pump panel.

This discharge(s) shall be equipped with a chrome 30-degree adapter, chrome plated rocker lug cap, and retaining chain that is attached to the pump panel.

A rubber grommet shall enclose the plumbing coming out of the pump panel for maximum heat retention in the pump house. **(Mandatory Requirement)**

Akron Style 8825 Swing - Out™ Valve

The valves shall be Akron Brass Style 8825 Swing-Out™ Valves. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. Products must carry a 10-year manufacturer's warranty.

Valve Actuator

The valve control shall be by a chrome swing handle located near the discharge.

Discharge Gauge - Dual Scale

A 2.5" discharge gauge shall be mounted adjacent to the discharge valve control handle. A removable bright metal or color-coded trim ring shall be supplied.

The gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation.
To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem (no exceptions).

The gauges shall be in dual scale and measure in increments of 0-400 psi and 0-2800 kPa.

Drain Valves

A drain shall be installed at the pump panel. The drain shall have 3/4" Synflex drain lines tied to a 1/4 turn drain valve with high pressure brass fittings.

2.5" DISCHARGE - CURBSIDE

Two (2) 2.5" gated discharge(s) shall be provided at the curbside pump panel.

This discharge(s) shall be equipped with a chrome 30-degree adapter, chrome plated rocker lug cap, and retaining chain that is attached to the pump panel.

A rubber grommet shall enclose the plumbing coming out of the pump panel for maximum heat retention in the pump house. (**Mandatory Requirement)**

Akron Style 8825 Swing - Out™ Valve

The valves shall be Akron Brass Style 8825 Swing-Out™ Valves. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. Products must carry a 10-year manufacturer's warranty.

Valve Actuator

The valves shall have chrome T handle actuators. For chemical and wear resistance a Lamacoid label specifying the discharge shall be inset into the T handle actuator. The label shall be color coded as per NFPA 1901 requirements.

Discharge Gauge - Dual Scale

A 2.5" discharge gauge shall be mounted adjacent to the discharge valve control handle. A removable bright metal or color-coded trim ring shall be supplied.

The gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation.
To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem (no exceptions).

The gauges shall be in dual scale and measure in increments of 0-400 psi and 0-2800 kPa.

Drain Valves

A drain shall be installed at the pump panel. The drain shall have 3/4" Synflex drain lines tied to a 1/4 turn drain valve with high pressure brass fittings.

3" DELUGE GUN DISCHARGE WITH SLO-CLOZ

A 3" deluge gun discharge shall be provided and installed above the pump house. The plumbing leading to the monitor standpipe shall be schedule 40 stainless steel plumbing. A threaded cap shall come with the monitor standpipe if no monitor is ordered.

Akron Style 8830 Swing - Out™ Valve

The valves shall be Akron Brass Style 8830 Swing-Out™ Valves. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. Products must carry a 10-year manufacturer's warranty.
The valve shall come with an Akron Slo Cloz assembly.

Valve Actuator

The valves shall have chrome T handle actuators. For chemical and wear resistance a Lamacoid label specifying the discharge shall be inset into the T handle actuator. The label shall be color coded as per NFPA 1901 requirements.

Discharge Gauge - Dual Scale

A 2.5" discharge gauge shall be mounted adjacent to the discharge valve control handle. A removable bright metal or color-coded trim ring shall be supplied.

The gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation.
To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem (no exceptions).

The gauges shall be in dual scale and measure in increments of 0-400 psi and 0-2800 kPa.

Drain Valves

A drain shall be installed at the pump panel. The drain shall have 3/4" Synflex drain lines tied to a 1/4 turn drain valve with high pressure brass fittings.

THREAD TYPE - DISCHARGE 2.5"

The threads that shall be provided for the 2.5" Discharges and 2.5" Suction Inlets shall be CSA.

2.5" DISCHARGE - REAR

One (1) 2.5" gated discharge(s) shall be provided at the rear of the apparatus.

The plumbing leading to the rear discharge shall be high pressure Class 1 hose and schedule 10 stainless steel with schedule 40 threaded fittings.

This discharge(s) shall be equipped with a chrome 30-degree adapter, chrome plated rocker lug cap, and retaining chain that is attached to the apparatus body.

Akron Style 8825 Swing - Out™ Valve

The valves shall be Akron Brass Style 8825 Swing-Out™ Valves. The valve shall have an all-brass body with flow optimizing stainless steel ball and dual polymer seats. The valve shall be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. All stainless-steel parts must be 316 grade for increased resistance to corrosion. The valve shall not require lubrication of seats or any other internal waterway parts and must be capable of swinging out of the waterway for maintenance by the removal of six bolts. Products must carry a 10-year manufacturer's warranty.

Valve Actuator

The valves shall have chrome T handle actuators. For chemical and wear resistance a Lamacoid label specifying the discharge shall be inset into the T handle actuator. The label shall be color coded as per NFPA 1901 requirements.

Discharge Gauge - Dual Scale

A 2.5" discharge gauge shall be mounted adjacent to the discharge valve control handle. A removable bright metal or color-coded trim ring shall be supplied.

The gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation.
To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem (no exceptions).

The gauges shall be in dual scale and measure in increments of 0-400 psi and 0-2800 kPa.

Drain Valves

A drain shall be installed at the pump panel. The drain shall have 3/4" Synflex drain lines tied to a 1/4 turn drain valve with high pressure brass fittings.

BOOSTER TANK

The booster tank shall have the following capacities:

1500 Imperial gallons
6820 Liter

The tank shall be provided with a lifetime tank manufacturer warranty.

The transverse and longitudinal swash partitions shall be manufactured of Polypropylene Copolymer material. 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 and meet NFPA rules. All swash partitions interlock with one another and are welded to each other as well as to the walls and floor of the tank.

The tank shall have a combination vent and fill tower. The fill tower shall be constructed of .5" thick Polypropylene Copolymer and shall be a minimum dimension of 8"x 8" outer perimeter. The tower shall be located in the left front corner of the tank unless otherwise specified by the purchaser. The tower shall have a .25" thick removable Polypropylene Copolymer screen and a Polypropylene Copolymer hinged-type cover. Inside the fill tower, there shall be a combination vent overflow pipe. The vent overflow shall be a minimum of schedule 40 pipe with a minimum I.D. of 4", unless a dump chute is included in the design in which case the I.D shall be 6". Both shall be of a design to run through the tank. The tank overflow shall be piped behind the rear wheels.

The tank cover shall be constructed of recessed .5" thick Polypropylene Copolymer, stress relieved, U.V. stabilized material. A minimum of two lifting dowels shall be drilled and tapped .5" x 2" to accommodate the lifting eyes.

There shall be one (1) sump standard per tank. The sump shall be constructed of .5" Polypropylene Copolymer and be located in the left front corner of the tank and shall meet the requirements of NFPA.

There will be two (2) standard tank outlets: one for tank to sump suction line and one for a tank fill line. All tank fill couplings shall 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 1,000 G.P.M.

The tank shall rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor. In cases where the overall height of the tank exceeds 40 inches, cross member spacing must be decreased to allow for not more than 400 square inches of unsupported area.

The tank must be isolated from the cross members through the use of hard rubber strips with a minimum thickness and width dimension of .25" x 2" and a minimum Rockwell hardness of 60 durometers. Additionally,

the tank must be supported around the entire bottom outside perimeter and capture both front and rear as well as side to side to prevent tank from shifting during vehicle operation.

The tank shall be mounted in the apparatus body in a manner that the total outside bottom perimeter of the tank shall be supported. The bottom of the tank shall be completely isolated from the frame by heavy-duty .25" thick rubber strips. There shall be a picture frame type cradle mount system utilized for the purpose of capturing the tank. There shall be a support system across the top of the tank to prevent excessive bouncing when the tank is empty.

Although the tank is designed as a free-floating suspension unit, it is required that the tank has adequate hold down restraints to minimize movement during vehicle operation. If proper retention has not been incorporated into the apparatus hose floor structure, an optional mounting restraint system shall be located on the top of the tank, halfway between the front and rear on each side of the tank.

The tank shall be completely removable without disturbing or dismantling the apparatus structure.

LIMITED LIFETIME POLY TANK WARRANTY

The water tank shall carry a tank manufacturer lifetime warranty against defects and workmanship. The apparatus manufacturer must be authorized for installation and alterations on poly tanks to not void any written warranties. **(Mandatory Requirement)**

FIREMAN'S FRIEND - 4" EXTERNAL TANK FILL - REAR RIGHT

There shall be a 4" external tank fill with a Storz fitting provided at the rear right of the apparatus body.

The internally mounted check-type fill valve shall be capable of flowing at a rate in excess of 1,000 gallons per minute. The internal valve shall be self-deflecting, requiring no additional diffusion device. The check valve shall be stainless steel and a spring actuated piston-type sealing mechanism to minimize seal wear and provide positive sealing of valve after shutting off at feed source. Valve seal designed to be self-cleaning, utilizing EPDM rubber.

The valve body shall have a mounting plate and the TTMA 6-bolt attachment pattern (2 1/2" to 3" valve body) positioned outside of and attached directly to tank wall. All valve components are constructed of highly corrosive resistant stainless steel. External attachment fitting corrosion resistant aluminum. Available with connections from 2 1/2" to 5" fittings.

10" NEWTON DUMP VALVE – STAINLESS STEEL - 180º DEGREE SWIVEL

One (1) stainless steel 10" Newton "Quick - Dump" with manual valve shall be provided at the rear of the apparatus. This valve shall extend out the center of the rear body with the control lever offset to the left side of the dump valve. The telescopic dump chute shall have a dimension of 8"H x 12.5"W to allow for a maximum

dump rate and extend up to 36". The chute shall have the capability of swinging 180º so it can be used on the left, rear and right side of the truck.

1/8" 3003 H22 checker plate aluminum shall be used to trim around the rear dump chute. The aluminum shall be attached with stainless steel fasteners.

EPDM rubber shall be attached to the aluminum to seal the dump chute.

TANK DRAIN

The tank shall have a 1.5" tank drain installed in the bottom of the tank and accessible from the ground.

ADJUSTABLE SHELVING UNI-STRUT SIDETRACKS

Six (6) set(s) of four (4) aluminum Unistrut sidetracks shall be provided for installation of adjustable shelves.

SCBA AIR BOTTLE STORAGE COMPARTMENT(S)

There shall be four (4) double air bottle storage compartment(s) installed in the rear fenders.

The double air bottle storage compartment(s) shall have a sealed weatherproof stainless steel access door with two black compression latch opening devices. The door shall be secured with a stainless-steel hinge.

The bottle storage tubes shall be manufactured from aluminum and come with rubber matting to protect the bottles. A nylon strap shall secure the air bottle in the tube in case of accidental door opening while in transit.

The door shall be tied to the door ajar warning light in the chassis cab.

APPARATUS BODY

The body shall be fabricated with the highest quality components available, and acceptable to the fire service industry. Only new components shall be in the manufacturing process.

The body shall be engineered and designed to provide a low center of gravity and carry a correct load distribution.

The entire body superstructure and sub frame shall be constructed of heavy-duty tubular aluminum and channels to provide a full frame body design.

The use of tubular aluminum and channels shall provide for extreme strength, maximum durability, and maximum resistance to buckling and failure.

The full frame body construction method shall provide for greater strength and integrity. Formed body construction shall not be acceptable.

All compartments shall be fabricated with 1/8" aluminum panels, saltwater marine grade 5083-H321, which are inserted into the body framework. The framework allows for reinforcement to the compartment, for installation of heavy equipment. The 1/8" aluminum panels, saltwater marine grade 5083-H321 panels shall provide extreme strength, rust corrosion resistance, and maximum durability.

Skilled craftsmen shall perform all welding operations on the body. All welding shall be electronically with the highest quality components.

Certified welders shall perform all welding. Proof of welder certification shall be provided with the completed vehicle.

BODY SUBFRAME

The body framework shall be assembled on a jig and shall be clamped together and squared. The framework shall be electronically welded with digital pulse welders forming the integral superstructure.

The body frame rails shall be constructed of 6061T6/6063-T6, 3" x 3" aluminum extrusions, with a wall thickness of 1/4".

The front cross member shall be a heavy duty 3" x 3" x 1/4" aluminum extrusions providing maximum strength and durability.

The rear cross members shall be heavy duty 3" x 3" x 1/4" aluminum extrusions providing maximum strength and durability at the rear section of the body.

These body cross members shall extend the full width of the body. The cross members shall provide support for the body side compartments and rear tailboard section.

The body sub frame and the chassis frame shall be insulated and separated by a rubberized belt.

The body side compartments, both sides and the rear shall be full frame constructed from heavy-duty aluminum extrusions 2" x 2" x 3/16".

The body shall be mounted to the chassis frame rails with four side mounting plates. This shall provide for maximum mounting strength and flexibility.

CORROSION PROTECTION

All body components or attachments made from dissimilar metals shall be fastened to the body utilizing an UHMW/Polyethylene material to prevent metal-to-metal contact preventing dielectric corrosion.

All fasteners used in attaching or fastening of aluminum panels shall be installed with stainless steel hardware. Rivets shall not be acceptable. (**Mandatory Requirement)**

All fasteners shall be installed in a manner which shall involve drilling, tapping, and application of non-corrosive grease before the stainless-steel bolts are installed. Self-tapping screws or screws without threads shall not be acceptable. **(Mandatory Requirement)**

BODY COMPARTMENTS

The body compartments shall be fabricated with 1/8" 5083-H321 saltwater marine aluminum panels. These panels shall be non-corrosive, durable, and add strength and integrity to the body construction.

The interior compartment seams shall be sealed and caulked with a permanent, pliable automotive type sealer.

All compartments shall have a 1" drop on the lower edge of the door opening to accommodate the door seal, and to stop moisture from entering the compartment. **(Mandatory Requirement)**

All compartments shall have sweep out floors.

All compartments shall be fitted with vinyl matting.

The external compartments tops shall be constructed of hi-shine 1/8” 3003-H14 aluminum tread plate.

All compartments shall have an aluminum drip molding installed over the top of the compartment doors.

All compartments shall be weatherproof.

SUB STRUCTURE WARRANTY - 20 YEAR

The substructure shall be warranted for a period of twenty (20) years on the apparatus sub structure for corrosion perforation. **(Mandatory Requirement)**

BODY WARRANTY - 20 YEAR

The apparatus body warranty shall cover the entire body against manufacturer defects for a period of twenty 20 years on aluminum and stainless steel full framed bodies. **(Mandatory Requirement)**

HOSE BED

The main hose bed shall be located above the booster tank and be sized to meet the requirements for a Pumper Fire Apparatus as specified in NFPA 1901 (Latest Edition) and ULC S515-13

A full width partition manufactured from 1/8" 5083-H32 sheet aluminum and aluminum angle brackets shall be mounted at the front of the hose bed. The partition shall have two (2) aluminum unistrut tracks for optional hose bed divider installation. The rearward section of the hose bed shall have one (1) aluminum Unistrut track for optional hose bed divider installation.

Two (2) 1/8" 5083-H32 trim pieces shall be attached to the rear hose bed tubing to prevent hose couplings from catching and allow smooth deployment of hose from the hose bed.

The rear track shall have come with 10' of snap cover to prevent the hose couplings from catching the track. The snap cover shall be shipped loose for customer installation after the hose bed dividers have been set up.

HOSE BED DIVIDER - ADJUSTABLE

There shall be Three (3) adjustable hose bed divider(s) provided.

The divider(s) shall be easily adjustable in the hose bed slide tracks.

Each divider shall be constructed from 3/16" 5052-H32 aluminum which shall be welded into a custom aluminum extrusion base frame.

Each hose bed divider shall have an oval handhold provided at the rear portion of the divider.

<<< Hose Bed Divider - 18" or Less In Height >>>

HOSE BED MATTING

The hose bed flooring shall be fitted with vinyl type matting to allow for air movement under the hose.

HOSE BED TARP

One (1) vinyl hose bed tarp shall be provided with shock cord fasteners or depending on hose bed obstructions, a combination of shock cord fasteners and nickel-plated quarter turn fasteners for the main hose bed. The hose bed tarp shall have an end flap with Velcro fasteners provided to cover the rear of the hose bed. The tarp shall be red in color.

REAR FENDERS

The rear fenders of the apparatus shall be fully removable to allow for servicing of the apparatus suspension system.

The rear fender outer skin shall be fabricated from 3/16" 5052-H32 aluminum. The aluminum shall be painted to the same color and paint process as the body.

The inner wheel well shall be fabricated from 1/8" 5083-H321 saltwater grade aluminum.

The fender shall be attached to the body using stainless steel screws. The screws shall be pre tapped before installation. Self-tapping screws are not acceptable.

All dissimilar metals shall receive a strip of UHMW isolation tape for corrosion resistance.

REAR FENDER EXTENSIONS

Each rear fender shall come with stainless steel fender extensions. For corrosion resistance, an EPDM molding shall be utilized to seal the fender extension and isolate it from the apparatus body. The fender extensions and EPDM molding shall be secured using stainless steel fasteners.

BODY SIDEWALLS - PAINTED

The area above the roadside and curbside compartments shall be 3/16" 5052-H32 aluminum. The aluminum shall be fastened using stainless steel screws that have been pre tapped. Self-tapping screws or rivets are not acceptable.

The sidewalls shall be painted utilizing the same painting process as used on the body.

REAR BODY SECTION - NATURAL FINISH ALUMINUM

The rear section of the apparatus body shall be finished with 1/8" 5083 H321 saltwater grade aluminum plate panels. The panels shall have a natural finish for installation of Chevron. The panels shall be fastened to the rear body framework with stainless steel fasteners. The stainless-steel fasteners are drill tapped. Sheet metal screws or self-tapping screws are not acceptable. **(Mandatory Requirement)**

CHEVRON STRIPPING

There shall be 6" chevron stripping decals applied to the rear face of the apparatus. The chevron decals shall be made of high visibility Reflexite™ material that is red / yellow in color and shaped to form an "A" style pattern. A minimum of 50% of the rear body shall be covered with Chevron.

COMPARTMENT MATTING

There shall be versatile PVC matting supplied on exposed body compartment floors. The matting shall be interlocking and 1" high to allow for air movement.

LEFT SIDE BODY COMPARTMENTS - HIGH

The following compartments shall be provided on the driver's side of the apparatus body.

Two (2) compartments forward of the rear wheel measuring 36"W x 65"H x 13.5"/ 26"D frame opening.

One (1) compartment over the rear wheel measuring 60"W x 35"H x 13.5"D frame opening.

One (1) compartment behind the rear wheel measuring 36"W x 65"H x 13.5"/ 26"D frame opening.

RIGHT SIDE BODY COMPARTMENTS

The following compartments shall be provided on the curbside of the apparatus body.

One (1) compartment forward of the rear wheel measuring 74"W x 40"H x 13.5"/ 26"D frame opening.

One (1) compartment behind the rear wheel measuring 36"W x 40"H x 13.5" / 26"D frame opening.

LADDER RACK

A Zico, 12 volt electrically operated side mounted drop-down ladder rack shall be installed on the right side of the apparatus body above the lower body compartments. This ladder rack shall accommodate three (3) individual ladders. The ladders shall be retained with chrome plated handles that shall be spring loaded.

The ladder control switch shall be installed at the right-side pump panel away from the ladder rack assembly for maximum personnel protection.

AMDOR ROLL UP DOORS

The doors shall be Amdor Roll-Up type doors to include double wall aluminum box section slats with integral hinge joint and recessed slat seal, reusable end shoes with snap-in securement, double wall aluminum reinforced bottom rail with either Stainless Steel Lift Bar door latching system, aluminum track with side frame, sill plate, and top gutter with non-marring top seal, side seals, bottom seal, with all wear component material to be Type 6 Nylon.

The slats shall have a true box section with a flat interior surface to prevent equipment hang-up. The slats shall have a face depth of 1.0 inches and a wall thickness of 0.045 inches. Each slat incorporates a recessed slat seal to weatherproof the compartment and reduce rattle between slats.

For every inch of height an integral continuous hinge joint spans the width of the door to provide superior strength.

The door glides on non-interlocked end shoes. Each end shoe is independent and positively secured by an exclusive snap-in device. Door slats can be easily removed and replaced when required.

The Stainless-Steel Lift Bar system shall be provided to keep the door securely closed. This system complements the superior strength of the bottom rail with bottom seal and integral reinforcing flange.

Wear components are constructed of Type 6 Nylon to provide maximum strength and durability. Type 6 Nylon is a naturally lubricating material, which provides exceptional temperature characteristics.

Each door is equipped with slat, top, bottom and side seals to keep moisture and dirt on the outside. The non-marring top seal provides a seal without marking the door surface.

The compartment door at the L1 location shall be Amdor roll up style.

The compartment door at the L2 location shall be Amdor roll up style.

The compartment door at the L3 location shall be Amdor roll up style.

The compartment door at the L4 location shall be Amdor roll up style.

The compartment door at the R1 location shall be Amdor roll up style.

The compartment door at the R2 location shall be Amdor roll up style.

DOOR STRAPS

All compartment doors that exceed comfortable open reach height of the 5th percentile adult female specified in the Canadian Motor Vehicle Safety Regulations shall receive a nylon loop pull strap.

RUB RAILS - APPARATUS BODY - NONSLIP

Three inch "C" channel aluminum rub rails shall be bolted into place with nylon spacers on the lower framework below the apparatus body compartments. The rub rail will extend to the outside edges of the apparatus body for protection of the body from impact damage.

The top surface of the rub rail shall have a non-slip surface meeting the requirements of NFPA 1901 for nonslip walking surfaces.

REAR TOW EYES - PAINTED

Two (2) heavy duty steel painted tow eyes shall be bolted directly to the rear frame rails.

These tow hooks shall be easily accessible from the rear of the apparatus body.

HOSE BED ACCESS LADDER - STAINLESS STEEL - REAR

There shall be a 12" wide folding ladder on the roadside rear of the apparatus for access to the main hose bed. The ladder shall be manufactured from 11 Gauge 304 - 2B stainless steel. Each rung of the ladder shall be

9 1/2" wide and shall be manufactured as an integral component of the side rails for maximum strength and rigidity. Each rung shall have a slip resistant dimpled surface. **(Mandatory Requirement)**

The ladder shall come with a gas strut to assist in unfolding the ladder or for folding the ladder for storage while not in use.

The hose bed access ladder shall have a weight rating of 500 lbs.

Two (2) 30" 1 1/4" diameter aluminum knurled handrails shall be vertically attached on each side of the hose bed access ladder.

A single minimum 12" handrail shall be supplied as an additional handhold.

HOSE BED ACCESS LADDER STEP LIGHT

The hose bed access ladder steps area shall be illuminated by one (1) Whelen PEL2C LED light.

TAIL BOARD

A heavy-duty 16" deep tailboard shall be provided.

The tail board shall be covered with slip resistant 3/16" embossed checker plate. The aluminum checker plate shall be bolted to the tail board sub frame with non-corrosive stainless-steel bolts. The bolt on aluminum tread plate shall allow for easy removal for service.

The forward section of the tail board shall be gapped to allow washing without dirt being trapped and for the drainage of accumulated water.

BODY HANDRAILS

The following handrails shall be installed on the apparatus body.

One (1) 48" mounted vertically on the curbside rear.

One (1) 42" mounted horizontally on the upper rear, below the hose bed area.

The body handrail shall be 1 1/4" in diameter and shall be knurled aluminum for maximum grip and safety.

The handrail shall be installed and supported with chrome plated polished cast brackets.

The handrail brackets shall be provided with an isolation gasket and held in place with stainless steel screws.

FOLDING STEPS - CURBSIDE REAR

One (1) folding aluminum steps shall be installed on the curbside rear of the apparatus.

The steps shall be mounted to a 3/8" plate with stainless steel screws. The plate shall be permanently welded to the apparatus body frame.

FOLDING STEPS - ROADSIDE FRONT

One (1) folding aluminum steps shall be installed on the roadside front of the apparatus.

The steps shall be mounted to a 3/8" plate with stainless steel screws. The plate shall be permanently welded to the apparatus body frame.

PULL OUT STEP

One (1) Zico P/N PS-8-5 pull-out step(s) shall be provided and installed at the rear body.

STEP LIGHTS - LED

All steps on the body shall have adequate light, per the requirements of NFPA and ULC, for illumination. The lights shall be Tecniq EON-Linear White 2.9"W lights for folding and cast step lighting or shall be already supplied with the manufacturer supplied steps.

LICENSE PLATE ILLUMINATION

An LED light shall illuminate the rear license plate mount. The light shall come with a chrome bezel.

COMPARTMENT LIGHTS - LED

All body compartments shall have LED lights activated by a switch. The LED compartment lights shall be flush mount and provide a consistent 120-degree wide beam pattern. There shall be a minimum of two strip lights installed in each compartment.

TRAFFIC CONTROL DIRECTIONAL LIGHT - LED

One (1) Whelen model TAM85 LED directional light shall be mounted on the rear of the vehicle as high as possible for best visibility.
The light shall have a manufacturer’s 5-year warranty.

Traffic Advisor -Installation - Multiplex Chassis

TRAFFIC CONTROL DIRECTIONAL LIGHT HOOD

The traffic control directional light shall be surface mounted. The traffic control device shall be protected by the horizontal hose bed access handrail.

BODY SCENE LIGHTING - LEFT

Two (2) Whelen model M9LZC surface mount light(s) shall be installed on the left side of the body. The lights shall come with a chrome plated plastic bezel. Their light shall have 9860 Lumens.
The light shall have a manufacturer Lifetime warranty.

BODY SCENE LIGHTING - RIGHT

Two (2) Whelen model M9LZC surface mount light(s) shall be installed on the curbside of the body. The lights shall come with a chrome plated plastic bezel. Their light shall have 9860 Lumens.
The light shall have a manufacturer Lifetime warranty.

BODY SCENE LIGHTING - REAR

Two (2) Whelen model M9LZC surface mount light(s) shall be installed on the rear of the body. The lights shall come with a chrome plated plastic bezel. Their light shall have 9860 Lumens.
The light shall have a manufacturer Lifetime warranty.

The rear scene light(s) shall be activated when the chassis transmission is placed into reverse.

REARVIEW CAMERA/MONITOR SYSTEM

One (1) Federal Signal model #CAMSET70-AHD-NTSC4 Camera/Monitor System shall be provided.

The system shall consist of (1) 7.0" Color Monitor, (1) Standard Rear-view Camera, and (1) 65.5-foot Extension Cable.

Monitor
The monitor shall be a 7.0" AHD LCD Color Monitor and is intended for use in vehicle applications utilizing up to (4) cameras with split-screen/quad-view capability.

The monitor shall incorporate a built-in speaker, a photo sensor for automatic brightness adjustment for low-light / no-light conditions, and a built-in quad control box for up to (4) cameras with independent trigger wires for each input.

Multi-voltage 12/24VDC capable

Resolution: 720P/1080P

The monitor dimensions shall measure 7.2” length x 4.9” width x 1.5” depth.

Standard Rearview Camera

The camera shall be a high-resolution Color CCD camera made from an anti-corrosion aluminum alloy housing.

The camera shall feature a photo sensor and (16) infrared LEDs for low-light / no-light conditions, a built-in microphone, and shall have a 118-degree viewing angle.

Pixel resolution of the camera shall be 1280 x 960.

The camera shall be IP68 rated for water and dust protection.

12 VDC

The camera dimensions shall measure 3.0” length x 2.4” width x 2.9” height.

Extension Cable

The camera-to-monitor Extension Cable shall be 20 meters (65.5 feet) in length with a waterproof connector.

ELECTRICAL SYSTEM - MULTIPLEXED

The manufacturer shall design the wiring system for the apparatus in accordance with the SAE, Society of Automobile Engineers.

The manufacturer shall determine the circuit loads and design the system to accommodate these loads with appropriate circuit routings and relays.

All wiring harnesses shall be properly secured and routed. All passages required for routing shall be grommeted and sealed as required.

All wiring shall be easily accessible for servicing.

All wiring shall be SAE J1128 and SAE J1292 GXL type wire, as per fire industry standards.

All exposed wiring shall be crimped, and heat shrunk for added protection.

The wiring harnesses shall be pre-engineered for correct circuit loading and shall be custom made. The harnesses shall be function, number, and color coded and shall be fitted inside automotive high temperature loom. All connections to the main panel box must be made with waterproof automotive style guided pin locking connectors.

An enclosed main electrical distribution panel that provides protection against dirt, dust, oil, and water shall be installed in the upper section of the pump house.

All electrical connections to the panel shall be made through positive locking environmentally sealed connectors. The panel features a solid-state power distribution board(s) with visual diagnostics.

All circuits are protected by automatic resetting circuit breakers. All breakers shall be properly sized to the circuit load and are direct plug-in sockets.

All wiring shall have a strain pull test on wiring connections of 40 pounds.

BATTERY MASTER SWITCH

The battery master switch shall be supplied by the chassis manufacturer.

ZONE A UPPER EMERGENCY LIGHTING

The zone A upper emergency lighting zone shall have the following:

A Whelen Justice 56" light bar **(**Whelen P/N 01-0686119-03**)** warning system shall be furnished and mounted to the chassis using a Whelen Stainless steel mount. The mount shall allow for adjustment of the lightbar angle. The light bar shall have a manufacturer's 5-year warranty.

ZONE A LOWER EMERGENCY LIGHTING

The zone A lower emergency lighting zone shall have the following lights and shall be mounted to the chassis grill:

Two (2) Whelen 600 Series Super-LED® model P/N 60R02FRR lights. These lights shall have a red lens, red LED's and come with a chrome bezel.
The light shall have a manufacturer 5 Year warranty.

ZONE B UPPER EMERGENCY LIGHTING

The zone B upper emergency lighting zone shall have the following:

No emergency lights in this zone

ZONE B LOWER EMERGENCY LIGHTING

The zone B lower emergency lighting zone shall have the following:

Three (3) Whelen 600 Series Super-LED® model P/N 60R02FRR lights. These lights shall have a red lens, red LED's and come with a chrome bezel.

The light shall have a manufacturer 5 Year warranty.

ZONE C UPPER EMERGENCY LIGHTING

The zone C upper emergency lighting zone shall have the following:

No emergency lights in this zone

ZONE C LOWER EMERGENCY LIGHTING

The zone C lower emergency lighting zone shall have the following:

Two (2) Whelen 600 Series Super-LED® model P/N 60R02FRR lights. These lights shall have a red lens, red LED's and come with a chrome bezel.
The light shall have a manufacturer 5 Year warranty.

ZONE D UPPER EMERGENCY LIGHTING

The zone D upper emergency lighting zone shall have the following:

No emergency lights in this zone

ZONE D LOWER ZONE

The zone D lower emergency lighting zone shall have the following:

Three (3) Whelen 600 Series Super-LED® model P/N 60R02FRR lights. These lights shall have a red lens, red LED's and come with a chrome bezel.
The light shall have a manufacturer 5 Year warranty.

REAR WARNING LIGHTS - LED – UPPER

Two (2) Whelen, model L31HRFN LED red beacons lights shall be provided and mounted for upper Zone C lighting, one (1) each side, and controlled by a switch located in the cab.
The lights shall have a Lifetime manufacturer warranty.

HEADLIGHT WIG WAG FLASHER

The chassis high beam headlights shall be equipped with an alternating flashing, wig wag headlight system. An electronic flasher shall be used to control the lights. A control switch panel shall activate the flashing system.

ELECTRONIC SIREN

A Whelen Siren Amplifier model # 295SLSA1 shall be provided. The siren amplifier shall incorporate a 12V/200W siren installed on an aluminum alloy chassis covered by a black polycarbonate powder coated housing for maximum protection. The 295SLSA1 shall have the ability for either 100- or 200-watt output. The front overlay shall be made of velvet Lexan™ with a matte finish. The lettering and artwork on the overlay shall be illuminated with adjustable backlighting of soft LED non-glaring green. The operating controls will consist of a power switch, manual button, PA volume switch, horn button, and rotary switch. The 295SLSA1 PC board shall have input polarity protection and output short circuit protection. The siren amplifier shall include a 20A/32V fuse. The solid-state siren speaker amplifier shall be vibration resistant. The microphone shall be hardwired to the 295SLSA1.

The 295SLSA1 shall have 21 Scan-Lock™ siren tones with two manual functions for additional siren tones. The siren amplifier shall have the ability to customize the placement of each siren tone with the rotary switch. The siren amplifier shall have a "Siren in Use" icon driver and adjustable preset repeat radio volume. The 295SLSA1 shall have a "Park Kill" feature that disables the siren when the vehicle is in park. The PTT (push to talk) switch on the microphone shall override all siren functions. The 295SLSA1 shall have a combination On/Off and horn ring transfer switch with Bi-polarity horn/ring activation control. The 295SLSA1 shall have SI Test® capability to perform a complete diagnostic silent test of amplifier and speaker(s). The siren amplifier shall have a quick disconnect plug. The 295SLSA1 shall have the ability to activate siren tones with "Aux Enable" input either with a slide switch, power controls, or relay-to-ground connector. The 295SLSA1 shall meet Class A requirement for SAE, AMECA, KKK1822, and California Title XII. The sire amplifier shall have an adjustable bail bracket with installation hardware. The 295SLSA1 is covered by a two-year factory warranty.

ELECTRONIC SIREN SPEAKER

There shall be a Whelen model # SA315P, 123db / 100-watt electronic siren speaker provided at the front bumper and connected to the electronic siren.

The speaker shall have a manufacturer 2 Year warranty.

SPEAKER COVER – BUMPER MOUNT

The chassis bumper shall come with a cut out for mounting the siren speaker behind. The cut out shall come with a stainless-steel cover that is slotted to allow sound to pass thru.

The bumper shall be chromed after the cut out has been made (**Mandatory Requirement)**

REAR TAILLIGHT ASSEMBLY

The rear taillight assembly shall consist of the following:

There shall be a total of Two (2) Whelen Plast3V chrome plated plastic brake / tail / turn light bezels installed on the rear of the apparatus. One each side. The bezels shall be attached with pre-tapped stainless-steel fasteners.

Brake Light Assembly - LED

There shall be Two (2) Whelen 600 Series LED turn lights, model 604BTT, installed on the rear of the apparatus. These lights shall be installed in the taillight bezels on the rear of the apparatus and shall come with red lenses.
The lights shall have a 5-year manufacturer warranty.

Turn Light Assembly - LED

There shall be Two (2) Whelen 600 Series amber LED turn lights, model 604T installed on the rear of the apparatus. The lights shall be programmed with a turn arrow chevron. These lights shall be installed in the taillight bezels on the rear of the apparatus.
The lights shall have a 5-year manufacturer warranty.

Backup Light Assembly - LED

There shall be Two (2) Whelen 600 Series white LED backup lights, model 604BU, installed on the rear of the apparatus. These lights shall be installed in the taillight bezels on the rear of the apparatus.
The lights shall have a 5-year manufacturer warranty.

HANDHELD CAB SPOTLIGHT

One (1) Sho-Me P/N 06.0300 handheld spotlight, with a momentary type control switch and 12' coiled cord shall be provided and mounted on the right side in the cab and wired into the 12 volt electrical system.

The spotlight shall have a 150-watt incandescent style bulb that draws 11.5 amps and shall be rated at 300,000 candle power.

The light shall be secured in the chassis cab with a stainless steel NFPA compliant hook.

HOSE BED FLOOD LIGHT(S) - LED

There shall be two (2) DTI model DTI-LED-010WX6 12V light(s) provided for hose bed and area lighting. The LED lighting shall be rated for 2700 lumens. The mounting base shall be a stainless-steel mount that

swivels vertically and horizontally. The lights shall be controlled from the cab and shall come with a shut off switch at the light head.

GROUND LIGHTS - LED

There shall be eight (8) LumaBar H2O 12" LED ground lights with outward facing angle brackets installed underneath the apparatus. The ground lights shall be activated by a switch installed in the chassis cab. Ground lights that are directly underneath a door opening will turn on automatically when the door is opened.

ENGINE COMPARTMENT LIGHT - LED

One (1) Tecniq EON P/N E03-W000-1 LED light(s) shall be installed in the engine compartment. The light shall come with a Tecniq stainless steel light bezel. A mercury switch shall activate the light when the hood is opened.

DOOR AJAR SYSTEM

A chassis supplied red flashing warning light for the door ajar system shall be provided in the cab. This light shall be activated when a compartment door on the apparatus body is open.

A magnetic sensor shall be installed in all compartments with a roll-up door.

An On / Off depression style switch shall be supplied in all compartments with a pan door.

CLEARANCE AND MARKER LIGHTS - LED

All clearance / marker lights, reflectors shall comply with department of transport motor vehicle safety standards. The clearance / marker lights shall be LED (light emitting diode) type.

A set of LED mid body turn signals shall be installed to comply with department of transport motor vehicle safety standards for vehicles over 30 feet in length.

TWO WAY RADIO POWER SUPPLY

There shall be one (1) dedicated 12V power supply line(s) coiled underneath the chassis dash for the future installation of each customer supplied two-way radio.

ANTENNA MOUNT(S)

One (1) mount(s) for future antenna installation shall be installed on the chassis cab roof. The antenna leads shall be wired to the chassis cab dash area for future installation of a radio.

PROVISION FOR FUTURE DEPARTMENT RADIO INSTALLATION

A location shall be provided for a future installation of a Fire Department supplied radio. The location provided shall receive a radio, model (specify radio model to be installed after delivery.

RADIO FACEPLATE

Each mounting location for a radio installation shall receive a Jotto face plate.

PAINT COLOR - CHASSIS

The chassis shall be painted a two-tone color by the chassis manufacturer. The lower paint color shall be the color of the final apparatus body.

Paint Break Striping

FINISH AND PAINTING - PPG

The painting shall be done in accordance with automotive practices using Delfleet® Evolution FBCH high solids polyurethane paint with the PPG painting process.

All painting shall be baked at 160 degrees F. for a minimum 45 minutes to provide an automotive quality finish.

After assembly, the body substructure shall be deburred, and hand sanded.

All ledges inside and outside shall be cleaned and sealed.

The painting process consists of the following applications:

a) Wash entire body with DX 440 wax and grease remover

b) Etch primer, PPG F3963 (0.2 - 0.35 mils dry)

c) Primer, PPG F3975 (3.0 - 6.0 mils dry)

d) Wash entire body with DX 330 wax and grease remover

e) Primer sealer, Epoxy PPG F399x (1.0 - 4.0 mils dry)

f) Base coat, Delfleet® evolution PPG FBCH (1.0 - 3.0 mils dry)

g) Clear coat, PPG F3906 clear (minimum of 2.0 mils)

All outside seams that are not 100 percent welded shall be sealed and caulked inside and outside.

Only after the entire painting process is completed shall the body structures be installed on the chassis.

Only after the body is painted shall the components such as doors, aluminum inlay panels, mounting brackets, handrails, pump panels, and other accessories be installed.

PAINT WARRANTY

The paint shall be warranted by PPG for a period of Ten (10) years and shall be ***non-prorated***. **(Mandatory Requirement)**

Items covered in the warranty shall include all body interior and exterior surfaces and painted pump houses and shall cover the following:

Peeling or delaminating of the topcoat and other layers of paint.
Cracking or checking due to failure of the product.
Excessive loss of gloss caused by cracking, checking, or hazing.

See attachment for full requirements of the warranty.

PAINT POLISH BODY - A.C.T. STANDARDS #3

The paint finish on the body shall meet the ACT test panel #3 level for orange peel visual standard. Test sample swatches shall be made available on request for paint finish comparison.
(Mandatory Requirement)

COMPARTMENT FINISH

The interior of all compartments of the body shall also be sealed and caulked. A textured finish of light gray urethane paint with a dark gray spatter finish shall be applied to all compartment interiors.

BODY UNDERCOATING - CORASHIELD®

The whole frame / cross members / wheelwell area / and inner body of the apparatus body shall be thoroughly prepared and sprayed with Corashield® that will help prevent rust and corrosion. A minimum of 8-10 mils of Corashield® shall be sprayed. The bottom, sides and tops of the cross members shall be fully covered.

The Corashield® is a sprayable latex coating designed for use on aluminum, fiber glass, cold rolled steel, galvanized steel, and most metal primers. Corashield® is formulated to give very good corrosion protection. This medium viscosity, sag resistant coating can be easily sprayed onto exposed underbody areas, and into restricted areas such as tubing and "hidden" areas accessible only with spray wands.

Corashield® dries quickly at ambient temperatures and will withstand urethane paint bakes after only 30 min drying at room temperature.

Corashield® provides better protection than any of the competitive products tested without the environmental and safety problems inherent in many of the undercoating available today.

KROWN RUST INHIBITOR

There shall be an application of Krown rust inhibitor applied to the chassis and the apparatus body as per the supplier's recommendation for maximum rust protection prior to delivery of the apparatus.

PIN STRIPPING - CAB & BODY

The cab and the cab doors along with any other painted panels not including the roll up doors shall receive a gold trim pin stripping.

4" REFLECTIVE BODY PRIMARY STRIPING

There shall be a four-inch-wide reflective stripe applied to the left and right sides of the apparatus according to the requirements of NFPA 1901 latest edition. The reflective stripe shall be a 3M Scotchlite product.

Accent Stripe

There shall be two (2) two-inch-wide reflective stripe(s) applied to the apparatus along with the primary reflective stripe. The reflective stripe shall be a 3M Scotchlite product.

The accent stripe shall be the same color as the main stripe.

PORTABLE TANK STORAGE – ENCLOSED TANK POCKET

There shall be an enclosed pocket built into the water tank for storage of a porta tank. The pocket shall come with an aluminum door mounted with positive style locking latches and a stainless-steel hinge.

SUCTION HOSE / PIKE POLE STORAGE COMPARTMENTS - INTERNAL

There shall be two (2) aluminum rear slide in suction hose compartments offset to the driver side of the body that will open to the rear of the apparatus.

There shall be a hinged aluminum door on the storage compartment with a positive twist type latch.

The compartments shall have the capacity to hold a minimum of two (2) lengths of 6" x 10' suction hose.

The compartment shall also come with two aluminum pike pole storage tubes.

PIKE POLE(S)

One (1) 8' fiberglass pike pole(s) shall be provided.

PIKE POLE(S)

One (1) 10' fiberglass pike pole(s) shall be provided.

HARD SUCTION HOSE - KOCHEK

Two (2) ten-foot section(s) of 6" Kochek PVC lightweight, flexible, hard suction hose shall be provided with lightweight male and long handle fem threaded couplings.

BARREL STRAINER

One (1) 6" Kochek BS60 barrel strainer shall be provided and shipped loose with the completed vehicle.