

Fouts Bros Fire Equipment



CJ SERIES TANKER

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Fouts Bros Fire Equipment

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SCOPE AND GENERAL REQUIREMENTS

It is the intent of the manufacturer to provide a new fire apparatus that will withstand the continuous use encountered in the emergency fire fighting service. The apparatus shall be of the latest type, symmetrically proportioned and constructed with due consideration of the load to be sustained.

All parts not specifically mentioned herein, but which are necessary in order to furnish a complete fire apparatus, shall be furnished and shall conform to the best practices known to the fire apparatus industry.

The unit is to be of current year manufacture, and is to be new and unused. The bid price shall not include any local, State, or Federal taxes. The Bidder shall not be liable for any State or Federally mandated tax or program after the sale of this apparatus.

These specifications shall be construed as minimum. Should the manufacturer's current published data or specifications exceed these, they shall be considered minimum and be furnished.

PRIME BIDDER, MANUFACTURER

The manufacturer shall be prime bidder and shall identify the location of their facility.

BIDDERS BACKGROUND

Bids are requested from responsible manufacturers who are engaged in the manufacture of fire apparatus. To insure reliable and complete acceptance of the apparatus, bidder shall have been in operation for a minimum of thirty (30) years in the manufacturing of fire apparatus.

The manufacturer of the apparatus must be fully owned and managed by a Parent Company, Corporation, or Individual(s) that is 100% held by United States of America based Company, Corporation, or United States citizen(s).

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Proposals from any manufacturer that is fully or partially owned and/or operated by a foreign company, Corporation or Individual(s) under any type of ownership, partnership, or any similar type of agreement will be immediately rejected.

If the manufacturer of the apparatus, or if any owner, shareholder, or immediate relative of an owner or shareholder that has previously been involved in or held ownership in any company that has filed bankruptcy or any other type of reorganization plan, it must be clearly stated in the bid proposal. The statement must include details and dates of all occurrences.

FAMA COMPLIANCE

The apparatus manufacturer must be a current member of the Fire Apparatus Manufacturer's Association (FAMA) and must provide certificate of membership.

FAIR, ETHICAL AND LEGAL COMPETITION

In order to ensure fair, ethical, and legal competition the apparatus manufacturer shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

PROPRIETARY PARTS

It is the intention of the purchaser for all bidders to furnish the apparatus with major parts commonly used by the heavy-duty truck manufacturers and open market vendors whereas replacement parts are more readily available and at reduced cost. The use of proprietary parts may not be acceptable to the purchaser.

MANUFACTURER'S DISCRETION

Materials, parts, or procedures used are subject to change at manufacturer's discretion at any time to provide equal or better products.

PRODUCT QUALITY AND WORKMANSHIP

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The components provided and workmanship performed shall be of the highest quality available for this application. Special consideration shall be given to the following areas:

- A). Accessibility to various components that require periodic maintenance or lubrication checks.
- B). Ease of vehicle and pump operation.
- C). Features beneficial to the intended operation of the apparatus.

Construction of the complete apparatus shall be designed to carry the loads intended to meet the road and terrain conditions and speed requirements desired when specified by the purchaser.

Welding shall not be employed in the assembly of the apparatus in a manner that will prevent the removal of any major component part for service and/or repair.

INSURANCE REQUIREMENTS

Each bidder must submit with their bid proposal a Certificate of Insurance listing the proposed manufacturer's product liability insurance coverage. Liability insurance shall be a minimum amount of ten (10) million dollars. Submitted certificate shall name the apparatus manufacturer, insurance company, policy number, and effective dates of the insurance policy. Bids submitted without the required certificate will be considered non responsive and automatically rejected. No exceptions are allowed to the minimum insurance coverage requirement.

The manufacturer shall maintain full insurance coverage on the purchaser's cab and chassis from time of first possession by the manufacturer until the apparatus is delivered and accepted by the purchaser (No Exceptions). Purchaser reserves the right to require proof of insurance from the manufacturer's insurance carrier prior to entering into a contract for the apparatus.

PAYMENT TERMS

Full payment for the apparatus shall be made at time of delivery of the completed vehicle. Due to insurance liability, the apparatus will not be left at the purchaser's

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location without full acceptance and payment or prior agreement between the Purchaser and Bidder.

Final delivery price shall not include any Local, State or Federal taxes. The manufacturer shall not be liable for any State or Federal mandated tax or program after sale or delivery of the apparatus.

VEHICLE ACCEPTANCE AND DELIVERY

The customer shall pickup the vehicle at the manufacturing facility and shall supply evidence of sufficient insurance coverage to transport the vehicle.

FUEL TANK FILLED AT DELIVERY

The fuel tank and DEF tank (if applicable) shall be filled upon final delivery at the factory.

OVERALL HEIGHT

An overall height restriction has not been specified for this apparatus.

OVERALL LENGTH

No overall length restriction has been specified for this apparatus.

OVERALL WIDTH

No overall width restriction has been specified for this apparatus.

OVERALL WHEELBASE

No overall wheelbase restriction has been specified for this apparatus.

ANGLE OF APPROACH

No angle of approach restriction has been specified for this apparatus.

ANGLE OF DEPARTURE

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No angle of departure restriction has been specified for this apparatus.

NFPA COMPLIANCE

The National Fire Protection Association standard #1900 (most recent edition) is hereby adopted and made a part of these specifications, the same as if they were written out in full detail. Bidders are to provide only the equipment requested herein and the Department will supply the rest before the apparatus is put into service. The unit shall comply with all federal, state, ICC, and DOT motor vehicle regulations, standards, and laws relating to commercial vehicles as well as to fire apparatus on the date of the bid.

ROAD TEST CERTIFICATION

A road test shall be conducted with the finished apparatus fully loaded. During this time, the apparatus shall not show loss of power and/or overheating. The transmission drive shaft or shafts and rear axle shall run free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, shall have not less than 25% or more than 45% of the weight on the front axle and not less than 55% or more than 75% on the rear axle.

- A). The apparatus must be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.
- B). The apparatus must be capable of accelerating from a steady speed of 15 mph to a true speed of 35 mph within 30 seconds. This shall be accomplished without moving the gear selector.
- C). The fully loaded apparatus shall be capable of obtaining a speed of 50 to 55 mph on a level concrete highway.
- D). The manufacturer shall furnish copies of the engine installation approvals signed by the appropriate engine company upon delivery of the chassis to the Fire Department.

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- E). The manufacturer shall furnish copies of the transmission approval signed by the transmission manufacturer upon delivery of the chassis to the Fire Department.
- F). The manufacturer shall furnish copies of the front and rear axle approvals upon delivery of the apparatus to the Fire Department.

ROAD TEST FAILURE

In the event the apparatus fails to meet the test requirements of these specifications on the first trials, second trials may be made at the option of the manufacturer within thirty (30) days of the first trials. Such trials shall be final and conclusive and failure to comply with changes, as the purchaser may consider necessary to conform to any clause of the specifications within thirty (30) days after notice is given to the manufacturer of such changes, shall be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser, or its use by the purchaser during the above-specified period with permission of the manufacturer, shall not constitute acceptance.

VEHICLE TOP SPEED

The rear axle shall be geared for a top speed of 60 mph at engine governed RPM.

NFPA TOP SPEED STATEMENT

Per NFPA 1900 section 7.16.2, the maximum top speed of fire apparatus with a GVWR over 33,000 lbs. shall not exceed either 68 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

Per NFPA 1900 section 7.16.3, if the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gallons, or the GVWR of the vehicle is over 50,000 lbs., the maximum top speed of the apparatus shall not exceed either 60 MPH or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.

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SAFETY SIGNS

The following safety signs shall be provided:

SEATED AND BELTED WARNING LABEL - FAMA# 07

A permanent label shall be provided that is visible to all occupants that states that they should be seated and belted while the apparatus is in motion. The label shall also state potential injuries or death that could be caused if the safety belts are not used properly.

CAB INTERIOR EQUIPMENT MOUNTING DANGER LABEL - FAMA# 10

A permanent label shall be provided inside of the cab warning of the dangers of unsecured equipment inside the cab. The label shall state that all equipment shall be properly secured and also warn of potential injury or death that could be caused by failing to do so.

DO NOT WEAR HELMET LABEL - FAMA# 15

A permanent label shall be provided inside of the cab in view of all seated positions stating that helmets should not be worn in cab. The label shall also warn of potential injury or death that could be caused by wearing helmet in cab.

VEHICLE BACKING LABEL - FAMA17

A permanent label shall be provided inside of the cab in view of the driver advising of proper procedures to following when the apparatus is in reverse motion. The label shall also warn of potential injury or death that be caused by failing to follow proper procedures.

CHASSIS DATA LABELS

The following information shall be on labels affixed to the vehicle:

Fluid Data:

- Engine oil

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- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid (if applicable)
- Drive axle(s) lubrication fluid
- Air conditioning refrigerant
- Air conditioning lubrication
- Power steering fluid
- Cab tilt mechanism fluid (if applicable)
- Transfer case fluid
- Equipment rack fluid (if applicable)
- Air compressor system lubricant
- Generator system lubricant (if applicable)

Chassis Data:

- Chassis Manufacturer
- Production Number
- Year Built
- Month Manufactured
- Vehicle Identification Number

Location shall be in the driver's compartment of the chassis cab.

OVERALL HEIGHT, LENGTH, GVW DATA PLAQUE

A "high visibility" plate shall be permanently mounted in the cab, visible to driver when seated.

The plate shall show the overall height of the completed apparatus in feet and inches, the overall length of the completed apparatus in feet and inches.

The plate shall also show the gross vehicle weight rating (GVWR) in tons.

Text shall also be supplied on the plate, indicating that the information shown is current upon completion of the apparatus. If the overall height of the apparatus changes after the apparatus is put into service, then the purchaser must revise

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the dimensions on the plate.

FAMA SAFETY GUIDE

One (1) copy of the latest edition of FAMA's Fire Apparatus Safety Guide shall be provided with the completed apparatus.

COMMERCIAL CHASSIS

COMMERCIAL CHASSIS SPECIFICATION

CHASSIS PROVIDER

The chassis, as detailed in these specifications, shall be ordered and supplied by the apparatus manufacturer.

KENWORTH CHASSIS

A Kenworth 2-door chassis per the attached specifications shall be furnished:

CHASSIS PAINT COLOR

The cab shall be painted a single color.

Color: Fouts Fire Red

Paint Number: 763572EA

AIR HORNS

Two (2) Hadley chrome plated air horns shall be installed at the front of the vehicle. The air horns shall be mounted in full compliance of NFPA. The supply lines shall be dual 1/4" lines with equal distance from each horn.

Each air horn shall be mounted, one (1) each side, on the side of the hood.

Both air horns shall be controlled by a chassis manufacturer supplied lanyard.

ELECTRIC TRAFFIC HORN AND AIR HORN SELECTOR SWITCH

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One (1) selector switch shall be provided on the cab's dash that will allow the chassis steering wheel horn button to activate either the electric horn or air horn system. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

CHASSIS MODIFICATIONS

The following modifications and installations shall be performed on the chassis upon delivery to the apparatus manufacturer:

TIRE PRESSURE MONITORING DEVICE

A Real Wheels LED AlrGuard shall be supplied for each tire. The device shall consist of a valve stem cap to with an LED tire alert to indicate tire pressure conditions. The LED will flash when the tire drops 5-10 psi below the factory setting.

The tire pressure sensors shall be shipped loose.

HUB COVERS (front)

Chrome hub covers shall be provided on the front axle.

HUB COVERS (rear)

A pair of chrome high hat hub covers shall be provided on each of the rear axle hubs.

COVERS, LUG NUT, CHROME

Chrome lug nut covers shall be supplied on front and rear wheels.

EXHAUST SYSTEM

The chassis exhaust system shall be provided as detailed in the chassis specifications. NO modifications shall be made by the apparatus manufacturer.

HOT EXHAUST DANGERS LABEL - FAMA# 04

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A permanent label shall be provided near any hot exhaust surface that warns of potential injury or death that could be caused by contact with the surface. The label shall also state precautions that should be taken while working on or around the surface.

BUMPER

The front bumper shall be provided as detailed in the chassis specifications.

CHASSIS PREPARATION

Prior to installation of the fire pump, apparatus body, or cab steps, all components which extend out beyond the chassis frame rails shall be removed and relocated to the area within the frame rails

CHASSIS TOW HOOKS

The front tow hooks shall be provided as detailed in the chassis specifications.

REAR TOW PLATES

Two (2) rear tow plates with 1.50" I.D. holes, constructed with 1.00" steel plate shall be provided on the apparatus. These shall be located below the apparatus body and fastened to the rear chassis frame rails.

REAR MUD FLAPS

A pair of black rubber mud flaps, with the manufacturer's logo, shall be provided and installed behind the rear wheels.

VEHICLE DATA RECORDER

The apparatus shall be equipped with an Innovative Controls "Vehicle Data Recorder and Seat Belt Warning System" (VDR/SBW) that is connected to the power train CAN (Controller Area Network) bus consisting of transmission (TCM), engine control (ECM) and anti lock brake (ABS) modules mounted on the apparatus. The VDR/SBW will function per NFPA 1900 utilizing the power train's J1939 data and using the "Seat Belt Input Module" for seat occupied and belt status information.

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SEAT BELT WARNING SYSTEM

There shall be a seat belt indicator system supplied in the cab. The indicator system shall indicate seat belt use for each individual seating position when the seat is occupied, the seat belt remains unfastened and the parking brake is released.

CENTER CONSOLE

A center console shall be furnished and shall be located between the driver and officer's seats. The top face of the console shall be designed as the switch panel for all emergency light switches.

BATTERY SYSTEM

The battery system shall be supplied with the chassis.

BATTERY JUMPER STUDS

External battery jumper studs shall be provided as detailed in the chassis specifications.

KEYLESS IGNITION SWITCH

One (1) non-removable, keyless style ignition switch shall be provided with the chassis.

MASTER BATTERY SWITCH

A master battery switch shall be provided as detailed in the chassis specifications.

MASTER BODY DISCONNECT SWITCH

There shall be a **SINGLE** master body disconnect on/off switch shall be provided in the cab, near the driver's door. The switch shall disconnect the power to the apparatus body when the ignition switch is in the off position.

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BATTERY CONDITIONER

A Kussmaul Chief Series Auto Charge 4012 battery charger with onboard display shall be supplied. The battery conditioner shall provide a 40 amp output for the chassis batteries and a 20 amp output circuit for accessory loads.

BATTERY CHARGER LOCATION

The battery charger shall be located in a pre-determined location by the manufacturer.

120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, automatic, 120 volt, 20 amp shoreline disconnect shall be provided for the on board, 120 volt battery charging systems.

AUTO-EJECT MATING PLUG

A 5-20P, 20 amp mating female cord end shall be shipped loose with the apparatus to allow the Fire Department to connect cord end to a Fire Department provided charging cord.

BATTERY CHARGER DISPLAY/ COVER

One (1) Kussmaul model 091-55-266-YW battery charger status center/ auto eject cover shall be supplied with the charger.

The cover shall be yellow in color.

SHORELINE RECEPTACLE LOCATION

The shoreline receptacle shall be located on the left hand side of the apparatus in a pre-determined location by the manufacturer.

AUXILIARY AIR COMPRESSOR

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A Kussmaul 12V air compressor shall be supplied. The compressor system shall be designed to maintain the air pressure in the air system while not in use. A pressure switch shall sense air pressure drop and engage the compressor which shall run until the pressure is restored.

AUXILIARY AIR COMPRESSOR LOCATION

The auxiliary air compressor shall be located in a pre-determined location by the manufacturer.

BACK-UP ALARM

One (1) 97 DB back up alarm shall be provided and installed at the rear of the unit. It shall be wired to activate when the transmission is placed in reverse.

PUMP, MODULE, AND RELATED ITEMS

NFPA 1900 COMPLIANT PUMP

The fire pump and related plumbing on the specified apparatus shall be installed in accordance with applicable NFPA 1900 guidelines at the time the contract was placed.

PUMP ASSEMBLY

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis.

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

The pump shall be driven by the truck transmission mounted 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 and drive line components.

The entire pump shall be hydrostatically tested to a pressure of 600 PSI. Pump shall be free from objectionable pulsation and vibration.

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

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

Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated.

The pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machines, hand-ground and individually balanced. The vanes of the impeller intake eye 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 impeller 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 torque of the engine in pump operating conditions. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat-treated chrome nickel steel shall withstand the full torque of the engine and pump operating conditions.

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

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

MECHANICAL SEAL

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

ELECTRONIC PUMP MANUALS

Two (2) sets of electronic fire pump service and operation manuals shall be provided with the completed apparatus.

PUMP WARRANTY

The pump shall be covered by the Hale Pro-Tech 5-year pump warranty against workmanship and materials. Both parts and labor shall be covered for the first 2 years and years 3-5 shall have parts only coverage.

1000 GPM FIRE PUMP SPECIFICATIONS

The centrifugal type fire pump shall be a Hale model MBP with a rated capacity of 1000 GPM. The pump shall meet NFPA 1900 requirements.

The pump shall be certified to meet the following deliveries:

1000 gpm (3785 L/M) @ 150 psi (10.3 bar)
700 gpm (2646 L/M) @ 200 psi (13.8 bar)

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500 gpm (1893 L/M) @ 250 psi (17.2 bar)

PTO FIRE PUMP DRIVESHAFTS AND INSTALLATION

The PTO fire pump shall be installed and shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets.

POWER TAKE OFF

A ten (10) bolt Chelsea model 871XEFJP-B5XV heavy duty transmission driven PTO shall be installed.

LEFT SIDE INLET - 6.00"

One (1) 6.00" steamer inlet with male NST threads shall be provided on the left side of the pump module. The inlet shall have a removable screen.

INLET CAP

One (1) 6.00" chrome plated cap with long handles and NSTF threads shall be supplied. The cap shall be capable of withstanding 500 PSI and be trimmed with the apparatus manufacturer's logo in the center of the cap.

PTO PUMP SHIFT SPECIFICATIONS -- PUMP AND ROLL

An electric powered PTO pump shift shall be installed in the cab driver's area where not subject to accidental engagement. The pump shift system shall permit "pump and roll" operations, as well as stationary pumping operations.

The following indicators shall be provided and installed:

A green "**PUMP ENGAGED**" indicator shall be located in the cab and shall energize when the pump shift has successfully been completed.

A green "**OK TO PUMP**" indicator shall be located in the cab, and shall energize when the pump is engaged, the chassis transmission is in neutral, and the parking brake is engaged.

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A green **"OK TO PUMP AND ROLL"** indicator shall be energized when the pump is engaged, the chassis transmission is in road gear, and the parking brake is released.

When the **"OK TO PUMP AND ROLL"** ☐ indicator is energized, the **"OK TO PUMP"** ☐ indicator shall not be energized.

The pump shall be capable of "Pump and Roll" up to 5 mph where the safety interlock shall disengage the PTO automatically.

PTO ENGAGEMENT SWITCHING

One (1) rocker switch with indicator shall be installed on the switch panel in the cab to control the PTO engagement switch. The switch shall be labeled "PTO Engage".

PIPING AND MANIFOLDS

All the plumbing and/or piping in the pump module shall be of 304 stainless steel or flexible piping for long life. All NPT pipe thread connections larger than ¾" connections shall be avoided in the construction of the plumbing system. The following valves shall have groove connection: rear discharge, tank fill, all 2" and 2-½" (5.08 and 6.35cm) pre-connect valves.

The flexible piping shall be black SBR synthetic rubber hose with 300 working pounds and 1200 pounds burst pressure for sizes 1.50" through 4.00". Sizes 0.75", 1.00" and 5.00" are rated at 250 pound working and 1000 pound burst pressure. All sizes are rated at 30 HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00" through 5.00" for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees F to 210 degrees F.

HOSE THREADS- NST

All hose threads shall be National Standard Thread (NST) on all base threads on the apparatus intake and discharges, unless otherwise specified.

VENTED LUG CAPS AND PLUGS

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All intake and discharge plugs and caps and plugs shall be vented lug type designed to relieve trapped pressure and help reduce possible operator injuries.

VALVES

The valves shall be Akron Brass with stainless balls. The valves shall be bi-directional with full flow capability. The valves shall be of fixed pivot ball design with a flow pressure rating to meet NFPA 1900 standards. All 3.00" discharge valves shall be supplied with a true slow close mechanism per NFPA specifications.

INDIVIDUAL DRAINS

One (1) individual Class1 lift up drain valve shall be furnished for each 1.50" or larger discharge port and each 2.50" gated auxiliary suction.

DISCHARGE GAUGES

Individual Class 1 2.50" line gauges for each 2.00" or larger discharge shall be provided and mounted adjacent to the discharge valve control handle. The gauges shall indicate pressure from 0 to 400 PSI. The pressure gauge shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40 degrees F. To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature material and be sealed from the water system using an isolating Sub Z diaphragm located in the stem.

PUMP CERTIFICATION

The fire pump shall be tested to meet the flow requirements of the pump. A written certification shall be provided with the completed vehicle.

RELIEF VALVE

There shall be one (1) suction side stainless steel relief pump valve provided on the pump system. The valve shall be configured with a 2.50" male NST discharge outlet.

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PRIMING SYSTEM

A Hale ESP priming pump shall be a positive displacement, oil-less rotary vane electric motor driven pump. The pump body shall be manufactured of heat treated anodized aluminum for wear and corrosion resistance.

The pump shall be capable of producing a minimum 24 Hg vacuum at 2,000 feet above sea level.

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

The priming pump shall not require lubrication.

The primer shall be capable of priming the pump through a 20' section of suction hose with a 10' lift within 30 seconds for pumps less than 1,500 gpm, and 45 seconds for pumps 1,500 gpm and larger. '

PRIMER CONTROL

The priming pump shall operate by a single pull control valve mounted on the pump operator's panel. The control valve shall be manufactured of bronze construction.

PRIMER FUSE

The primer shall be protected with a 250 amp fusible link that is designed to protect the apparatus 12 volt electrical system if the primer motor malfunctions.

U.L. TEST POINTS

Two (2) U.L. test plugs shall be mounted on the pump panel for testing of the vacuum and pressures.

MASTER PUMP DRAIN

A rotary type, 12 port master drain valve shall be provided and controlled at the lower portion of the side pump panel. The valve shall be located in pump

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compartment lower than the main body and connected in such a manner as to allow complete water drainage of the pump body and all required accessories. Water shall be drained below the apparatus body and away from the pump operator.

ENGINE COOLER VALVE

A pump cooler valve shall be installed in the instrument panel. The valve shall be a 0.25" multi-turn valve installed thru the instrument panel and labeled.

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

A Fire Research PumpBoss Max series PBA501-D00 pressure governor and control module kit shall be installed.

The following continuous displays shall be provided:

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

The pressure governor shall operate in two (2) control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. In pressure mode the pressure governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase.

LEFT SIDE AUXILIARY SUCTION

One (1) 2.50" intake with shall be located on the left side panel. The valve shall come equipped with an inlet strainer and a 2.50" FNST chrome inlet swivel.

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An Akron Brass 2.50" generation II swing-out valve shall be provided for the intake.

The valve shall be manually operated with a swift handle from the left hand side pump operator's panel. The swift handle shall have a recessed area for 1.00" x 3.00" ID tags with a color coded bezel.

There shall be an Class1 0.75" quarter turn drain valve included. The handle shall lift, to open and push down, to close.

INLET PLUG

One (1) 2.50" FNST chrome plated plug with chain shall be provided.

TANK TO PUMP

One (1) 3.00" valve shall be installed between the water tank and the pump.

An Akron Brass 3.00" generation II swing-out valve shall be provided for the tank to pump line.

The valve shall be actuated with an air cylinder. The valve shall be controlled with a switch at the pump panel.

TANK FILL/ RECIRCULATION LINE

One (1) 2.00" gated full flow pump to tank refill line shall be provided. Tank fill plumbing shall utilize 2.00" high pressure hose for tank connection to accommodate flexing between components.

An Akron Brass 2.00" generation II swing-out valve shall be provided for the tank refill.

The quarter turn valve shall be manually operated with a Class1 locking push pull control rod. It shall have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls shall be locked in any position.

FRONT DISCHARGE

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One (1) 2.50" discharge with 2.50" piping and valve shall be plumbed to the front of the apparatus.

An Akron Brass 2.50" generation II swing-out valve shall be provided for the front discharge.

The quarter turn valve shall be manually operated with a Class1 locking push pull control rod. It shall have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls shall be locked in any position.

Trident automatic 0.75" drain valve(s) shall be installed in the front discharge plumbing. The valve shall be normally open and shall close at 6 psi.

The discharge shall come equipped with a lift-up 0.75" drain valve and a matching color coded bezel.

One (1) 2.50" FNPT x 2.50" MNST adapter shall be located on the front bumper.

LEFT SIDE FRONT PANEL DISCHARGE

One (1) 2.50" discharge with valve shall be located on the left side panel. The 2.50" outlet shall be equipped with 2.50" MNST threads.

An Akron Brass 2.50" generation II swing-out valve shall be provided for the left hand front panel discharge.

The valve shall be manually operated with a swift handle from the left hand side pump operator's panel. The swift handle shall have a recessed area for 1.00" x 3.00" ID tags with a color coded bezel.

DISCHARGE CAP

One (1) 2.50" NSTF chrome plated cap with chain shall be provided.

The discharge shall come equipped with a lift-up 0.75" drain valve and a matching color coded bezel.

DISCHARGE, LH REAR

LEFT SIDE REAR DISCHARGE

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One (1) 2.50" discharge with valve shall be located on the left side of the rear of the apparatus. The 2.50" outlet shall be equipped with 2.50" MNST threads.

An Akron Brass 2.50" generation II swing-out valve shall be provided for the left hand front panel discharge.

The valve shall be manually operated with a swift handle from the left hand side pump operator's panel. The swift handle shall have a recessed area for 1.00" x 3.00" ID tags with a color coded bezel.

DISCHARGE CAP

One (1) 2.50" NSTF chrome plated cap with chain shall be provided.

The discharge shall come equipped with a lift-up 0.75" drain valve and a matching color coded bezel.

RIGHT HAND SIDE DISCHARGE

One (1) 2.50" discharge shall be located on the right hand side of the apparatus, forward of compartment R1.

An Akron Brass 2.50" generation II swing-out valve shall be provided for the right hand side discharge.

The quarter turn valve shall be manually operated with a Class1 locking push pull control rod. It shall have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls shall be locked in any position.

DISCHARGE CAP

One (1) 2.50" NSTF chrome plated cap with chain shall be provided.

The discharge shall come equipped with a lift-up 0.75" drain valve and a matching color coded bezel.

PRE-CONNECT #1

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One (1) 1.75" crosslay pre-connect shall be installed in the tray on the drivers side. The preconnect shall have 2.00" plumbing and a 1.75" valve.

The crosslay discharge shall terminate below the floor of the bumper crosslay with a 2.00" NPT female x 1.50" NST male chicksan swivel adapter.

An Akron Brass 2.00" generation II swing-out valve shall be provided for pre-connect # 1.

The quarter turn valve shall be manually operated with a Class1 locking push pull control rod. It shall have a chrome plated zinc handle with a recessed area for 1.00" x 3.00" identification tag. The controls shall be locked in any position.

The discharge shall come equipped with a lift-up 0.75" drain valve and a matching color coded bezel.

HOSE REEL - ELECTRIC REWIND

One (1) HANNAY polished aluminum booster reel with electric rewind shall be supplied and installed. The reel shall be capable of carrying 150.00' of 1.00" booster hose.

The reel shall have a 1.00" Female NPT inlet connection with a 90 degree ball bearing swivel joint. The reel shall have a 1.00" Male NST outlet. The reel shall have an auxiliary gear-driven crank rewind that shall be easily accessible.

The hose reel shall be mounted between the frame rails at the rear of the chassis. There shall be a removable aluminum cover installed under the booster reel to shield it from road debris.

A 4-way, full length stainless steel capture roller assembly shall be installed in the rear tailboard to allow the hose to be deployed to both sides of the truck and reduce wear.

BOOSTER REEL DISCHARGE

The booster reel discharge shall be plumbed from the valve to the hose reel utilizing 1.50" high pressure hose.

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An Akron Brass 1.50" Generation II Swing-Out valve shall be provided for the booster reel discharge.

The valve shall be actuated with an air cylinder, and controlled with a switch at the pump panel.

No pressure gauge shall be provided for the booster reel discharge.

There shall be one (1) hose reel rewind switch installed and properly labeled. It shall be a weather-resistant momentary push button switch and shall be located on the rear of the apparatus near the booster reel.

BOOSTER REEL HOSE

The booster reel shall be supplied with 100' of 0.75" NST red lightweight booster hose.

3.50" MASTER PRESSURE GAUGE

One (1) Class 1, 4.50" liquid filled master pressure gauge with stainless steel bezel shall be provided, reading from 0 Hg. to 400 psi. It shall be accurate to within 1%. The gauge shall have a white face and black markings. The gauge shall be located on the pump operator's panel.

3.50" MASTER INTAKE GAUGE

One (1) Class 1, 3.50" liquid filled master intake gauge(s) with stainless steel bezel shall be provided, reading from -30" Hg. to 400 psi. It shall be accurate to within 1%. The gauge shall have a white face and black markings. The gauge shall be located on the pump operator's panel.

LED WATER LEVEL GAUGE (PUMP PANEL)

One (1) Innovative Controls Soft-Glo model # 3050869-03-W-37 LED water level monitor kit shall be provided and installed on the left hand side pump operator's control panel. The display shall show the volume of water in the tank using four (4) distinct illuminated levels. Tank level indication is enhanced by the use 180° wide-angle diffusion lenses in front of the LEDs.

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- | | |
|---------------------|-----------|
| • Green LED cluster | Full tank |
| • Blue LED cluster | 3/4 tank |
| • Amber LED cluster | 1/2 tank |
| • Red LED cluster | 1/4 tank |

The gauge shall use a pressure transducer #3030376-01 installed near the bottom of the water tank to determine the correct volume in the tank.

CAB MOUNTED WATER TANK INDICATOR

One (1) Innovative Controls Soft-Glo model #3050853-W-37 mini tank level display shall be provided and installed on the console in the cab. The display(s) shall show the volume in the tank on 4 distinct illuminated levels. The display shall mimic the main pump panel mounted display via CAN Bus.

LARGE LIGHT WATER LEVEL GAUGE, EACH SIDE OF BODY

Three (3) large LED water level gauges shall be provided, one (1) on both sides of the body and one (1) on the rear. Each side shall have a Innovative Controls Soft-Glo Mini Monster LED strip light mounted on the body as directed. Each light shall be surface mounted.

The strip lights shall be mounted as to indicate the following water levels:

- | | |
|---------------------|-----------|
| • Green LED cluster | Full tank |
| • Blue LED cluster | 3/4 tank |
| • Amber LED cluster | 1/2 tank |
| • Red LED cluster | 1/4 tank |

Each display shall mimic the main pump panel mounted display via CAN Bus.

PUMP MODULE BODY

The pump module body shall be a self-supported structure mounted independently from the body and chassis cab. The pump module shall be constructed entirely of extrusions and aluminum plate. The pump module support shall be bolted to the left hand side frame rails of the chassis.

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SIDE PANELS

The pump compartment module side pump panel shall be constructed of a 14 gauge brushed stainless steel sheet.

PUMP PANEL LIGHTS

Two (2) Maxxima model M84421 waterproof strip lights with 84 LEDs shall be installed on the pump panel area. The light(s) shall be 23.50" in length, have a clear acrylic lens, aluminum housing, and have a minimum effective output of 1,700 lumens.

A weather resistant switch, located on the pump operator's panel shall be provided to activate the lights.

HOSE RESTRAINT LABEL - FAMA# 22

A permanent label shall be provided near any hose storage area. The label shall instruct the operator to insure that all hose is properly secured prior to placing the apparatus in motion and to provide warning of potential dangers, including injury or death, in failing to do so.

INTAKE/DISCHARGE CAP PRESSURE LABEL - FAMA# 18

A permanent label shall be provided in all areas that intakes and discharges are capped. The label shall give instruction on how to properly remove the cap. The label shall also warn of potential dangers, injury or death that be caused by failing to follow proper cap removal procedures.

TRAINED OPERATOR ONLY LABEL - FAMA# 25

A permanent label shall be provided on the pump panel that states that only properly trained personnel should operate the apparatus and shall indicate that injury or death could occur as a result.

PUMP PANEL ID PLATE

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An identification plate shall be installed on the pump operator control panel to identify the fire pump serial number, model number, and performance.

COLOR CODED PUMP PANEL LABELING AND NAMEPLATES

Discharge and intake valve controls shall be color coded in compliance to guidelines of applicable sections of NFPA standards. Innovative Controls permanent type nameplates and instruction panels shall be installed on the pump panel for safe operation of the pumping equipment and controls.

Discharge Port, Manifold, 2.00"

WATER TANK AND RELATED COMPONENTS

3000 GALLON POLY TANK

Tank capacity shall be 3000 US gallons / 2498 Imperial gallons / 11356 Liters.

TANK MATERIAL

The tank shall be constructed of virgin, stress-relieved, high-impact copolymer polypropylene. Tank shell thickness may vary depending on the application and may range from 0.50" to 1.00" as required.

CONSTRUCTION

The booster and/or foam tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments.

All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All partitions and spacing shall comply with NFPA 1900.

Tank covers shall incorporate minimum of (2) lifting lugs, for use with the tank empty only, consisting of 2.00" copolymer dowels. The dowels shall be drilled and tapped to accommodate lifting eyes with a minimum security factor of 3 to 1. The lifting dowels shall be welded to the internal partitions and extend through the covers to assist in minimizing cover flex during normal operation.

CAPACITY CERTIFICATION

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All water and foam tanks shall be tested and certified as to capacity.

WATER FILL TOWER AND COVER

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 0.50" polypropylene and shall be a minimum dimension of 14.00" x 14.00" outer perimeter. The tower shall have a 0.25" thick removable polypropylene screen and a polypropylene hinged cover.

The fill tower shall have an anti-surge provision. It shall be designed to prevent water splashing up through the top of the fill tower when the water tank is full, and the apparatus comes to an immediate stop. (NO EXCEPTION)

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall have a minimum I.D. of 6.00" and is designed to run through the tank, and shall be piped to discharge water behind the rear wheels as required in NFPA 1900 so as to not interfere with rear tire traction.

SUMP

There shall be one (1) sump standard per tank. An anti-swirl plate located approximately 3.00" above the inside floor.

WATER TANK CLEAN-OUT PLUG

The tank shall have a 4.00" N.P.T. threaded outlet on the bottom for a cleanout/drain plug per NFPA.

MOUNTING BLOCK(S), LH AND RH SIDE

There will be four (4) mounting blocks, two (2) on each side for mounting equipment such as ladder brackets.

REAR CAMERA NOTCH

A recessed mounting area for a backup camera shall be built into the rear of the tank. As high and as close to the center line as possible.

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HOSE BED

There shall be a hose bed area constructed of polypropylene on the top of the tank consisting of two side walls and one front panel. The hose bed shall be welded to the outside perimeter of the tank cover, and shall be approximately 10.00" tall by the length and width of the water tank.

The hose bed shall be free from all projections, which may interfere with the unloading of hose.

HOSE BED STORAGE CAPACITY

The hose bed shall be designed to have a storage capacity for a minimum of 80.00 cubic feet of fire department supplied fire hose.

HOSEBED FLOOR

The floor of the hose bed shall be grooved by the tank manufacturer to provide an integral planking designed to allow the loaded hose to drain and allow airflow for ventilation.

BULKHEAD HOSEBED DIVIDER/DUNNAGE COMPARTMENT

A stationary bulkhead divider shall be provided in the front area of the main hosebed separating the hosebed from the tank fill tower(s). The balance of this area that is not occupied by fill tower or other mounted equipment shall be used as a dunnage compartment.

HOSE BED DIVIDER TRACKS

Hose bed divider tracks shall be installed in the hose bed. The tracks shall allow hose bed dividers (if specified) to be adjustable, from side to side in the hose bed, to accommodate varying hose loads.

ALUMINUM HOSE BED COVER SHALL BE PROVIDED

REAR DUMP VALVE

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One (1) NEWTON 10.00" Model 1050-34 Stainless Steel dump valve shall be installed. It shall be located at the rear center of the apparatus.

One (1) manual operated lever control shall be used to open and close the dump valve, the lever shall be located on the top of the valve.

SWIVEL DUMP SYSTEM

A Newton Model 6012SW-34 stainless steel swivel dump chute extension shall be mounted on the rear dump valve. The unit shall be able to rotate 180 degrees and lock in place while the apparatus is in motion. With the swivel attached, the chute shall be capable of flowing 2,777 gpm.

TELESCOPIC EXTENSION CHUTE

One (1) Newton, model 4036-8X12-34, manual stainless steel telescoping extension chute shall be installed on the swivel. The extension chute shall be capable of extending 36.00" past the dump valve.

DIRECT TANK FILL - LEFT HAND SIDE

There shall be a one (1) 2.50" direct tank fill located on the left-rear of the apparatus. The valve shall be an Akron 8800 Series swing out valve. This valve shall be operated using a direct manual actuator handle. Valve inlet shall be a 2.50" female hose thread adapter and feature a 30 degree droop with a wire screen inlet strainer and a swivel.

PLUG

One (1) 2.50" chrome plated plug shall be provided. The threads shall be NST and the plug shall be equipped rocker lugs and chain.

DIRECT TANK FILL REDUCER -RIGHT HAND SIDE

The 4.00" FNPT inlet on the right hand side rear of the tank shall be reduced down to 2.50" FNPT. This shall allow the future installation of a LDH rear tank fill.

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DIRECT TANK FILL - RIGHT HAND SIDE

There shall be a one (1) 2.50" direct tank fill located on the right-rear of the apparatus. The valve shall be an Akron 8800 Series swing out valve. This valve shall be operated using a direct manual actuator handle. Valve inlet shall be a 2.50" female hose thread adapter and feature a 30 degree droop with a wire screen inlet strainer and a swivel.

PLUG

One (1) 2.50" chrome plated plug shall be provided. The threads shall be NST and the plug shall be equipped rocker lugs and chain.

SUBFRAME

The sub frame shall be constructed from structural steel channel and plate, welded together and bolted to the chassis frame. The main support shall be a 0.3125" thick steel plate under the tank floor with a 2.50" angle steel around the perimeter of the tank. Two (2) sub frame long sills constructed of 3.00" X 7.00" steel tubing with 0.1875" walls shall run the full length of the subframe and be mounted to truck frame using 0.1875" angle clips and a minimum of ten (10) grade 8 bolts.

MOUNTING

The tank shall rest on the subframe as to not allow for more than 530 square inches of unsupported area under the tank floor. In cases where overall height of the tank exceeds 40 inches the subframe shall be designed to allow for not more than 400 square inches of unsupported area. The tank shall be supported to prevent itself from shifting during vehicle operation. A non-corrosive protective liner shall be installed in between the tank and the subframe.

BODY CONSTRUCTION

The body shall be fabricated of steel tubing, angle, smooth aluminum sheet and aluminum treadplate.

The tubing shall be designed as structural-framing members with the smooth

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aluminum and treadplate fabricated to form compartments, floors and fender panels

The side compartments shall be modular in design and shall be capable of being replaced if damaged. Each shall be supported by the steel frame and attached to the sub frame with grade 8 bolts.

All body compartments will have a method of ventilation provided either by louvers stamped into a wall or another method to allow the compartments to aerate. The ventilation design will provide the proper airflow inside the compartments and prevent water from dripping into the compartment.

The side compartments shall be constructed of formed 0.125" aluminum.

Compartment flooring will be of the sweep out design

FENDER PANELS - ATP

The rear fender panels shall be constructed of 0.125" bright aluminum tread plate and be an integral part of the tanker body.

BODY FINISH - ATP

The compartments and fenders, together forming the body, shall remain unpainted.

WHEEL WELL DESIGN

The rear wheel wells shall be radius cut for a streamlined appearance.

FENDERETTES

Four (4) polished stainless steel fenderettes shall be provided over the rear tandem wheel well openings, one (1) each side. Each fenderette shall be made of 14 gauge 304 stainless steel. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement.

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The fenderettes must be bolted into place and removable for replacement.

ROLL-UP DOORS - AMDOR

All lower compartment doors shall be equipped with AMDOR brand roll-up doors. The slats shall be 1.00" double wall aluminum with continuous ball and socket hinge joints designed to prevent water ingress and weather tight recessed dual durometer seals. The interior door curtains shall be smooth to prevent equipment hang-ups. The door tracks and side frames shall each be one-piece aluminum. Each side seal shall be recessed, and non-marring with UV stabilizers to prevent warping. The bottom panel flange shall have cut-outs for ease of access with gloved hands. The door strikers shall provide support beneath the lift bar to prevent door curtain bounce and potential false door ajar indications.

The bottom rail lift bars shall be constructed of stainless steel.

LEFT SIDE COMPARTMENT IN FRONT OF REAR WHEELS, L-1

One (1) compartment shall be supplied on the left hand side of the truck in front of the rear wheels. Compartment dimensions shall be approx. 36.00" wide by 26.00" deep by 27.00" high.

The compartment shall have a roll up door. The door shall have a satin finish.

COMPARTMENT LIGHT

One (1) 13.00" Luma Bar clear LED strip light shall be installed vertically inside the compartment.

COMPARTMENT LIGHT ACTIVATION

The compartment light(s) shall be controlled by a a magnetic "On-Off" switch located on the compartment door.

LEFT SIDE COMPARTMENT BEHIND REAR WHEELS, L-2

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One (1) compartment shall be supplied on the left hand side of the truck behind of the rear wheels. Compartment dimensions shall be approx. 18.00" wide by 26.00" deep by 18.00" high.

The compartment shall have a roll up door. The door shall have a satin finish.

COMPARTMENT LIGHT

One (1) 9.00" Luma Bar clear LED strip light shall be installed vertically inside the compartment.

COMPARTMENT LIGHT ACTIVATION

The compartment light(s) shall be controlled by a a magnetic "On-Off" switch located on the compartment door.

RIGHT SIDE COMPARTMENT IN FRONT OF REAR WHEELS, R-1

One (1) compartment shall be supplied on the right hand side of the truck in front of the rear wheels. Compartment dimensions shall be approx. 70.00" wide by 26.00" deep by 27.00" high.

The compartment shall have a roll up door. The door shall have a satin finish.

COMPARTMENT LIGHT

One (1) 13.00" Luma Bar clear LED strip light shall be installed vertically inside the compartment.

COMPARTMENT LIGHT ACTIVATION

The compartment light(s) shall be controlled by a a magnetic "On-Off" switch located on the compartment door.

RIGHT SIDE COMPARTMENT BEHIND REAR WHEELS, R-2

One (1) compartment shall be supplied on the right hand side of the truck behind of the rear wheels. Compartment dimensions shall be approx. 18.00" wide by 26.00" deep by 18.00" high.

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The compartment shall have a roll up door. The door shall have a satin finish.

COMPARTMENT LIGHT

One (1) 9.00" Luma Bar clear LED strip light shall be installed vertically inside the compartment.

COMPARTMENT LIGHT ACTIVATION

The compartment light(s) shall be controlled by a a magnetic "On-Off" switch located on the compartment door.

DROP TANK STORAGE- RH SIDE

There shall be room to store an appropriate size dump tank under the right hand side "T" portion of the tank. The area shall have a mechanical means to lock the dump tank in place while the apparatus is in motion.

The tank shall slide in horizontally into the hold from the right side of the body.

The storage shall have the capacity for one (1) 3000 US Gallon portable tank with an aluminum frame.

HARD SUCTION STORAGE & Preconnect Discharge- LH SIDE

There shall be a hard suction storage tray located under the left hand side of the "T" portion of the tank. The hard suction hose storage shall be accessed from the ground at the rear of the unit.

In order to provide a comfortable and safe level of access to the hoses, there shall be no exception allowed to this feature.

THERE SHALL BE A PRECONNECT IN THE HARD SUCTION STORAGE TRAY.

The suction storage shall have capacity for two (2) 10.00' sections of hard suction hose.

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REAR TAILBOARD (ANGLED)

A rear beavertail with diamond plate aluminum covering will be provided at the rear of the truck. It shall consist of two (2) steps made of grip-strut material. The top step shall be 7.00" deep and the bottom shall be 9.50" deep. This area is to be used as a step, but is not designed to carry personnel and should never be used to transport firemen. **THE REAR BUMPER WILL TAPER UPWARD FROM THE WHEEL TO INCREASE ANGLE OF DEPARTURE.**

STEPS

All steps shall have a surface area of at least 35 square inches and shall be able to withstand a load of at least 500 pounds.

REAR FOLDING STEPS

Innovative Controls model 3004234 folding steps shall be furnished and located, at the rear of the apparatus. The exact number of steps provided may vary depending upon body configuration and options.

FOLDING STEPS- RH SIDE FRONT OF BODY

Innovative Controls model 3007732 folding steps shall be furnished and located, at the right hand front of the body. The exact number of steps provided may vary depending upon body configuration and options.

PULL OUT STEP- LH SIDE REAR

One (1) Zico model PS-8-5 manual pull-out step shall be mounted on the left hand rear of the apparatus. When in the stored position the unit takes 12.00" x 16.25" area, and when extended drops 8.00" to create an optimal stepping distance. The step shall meet NFPA requirements for stepping surface and slip resistance.

EXTERIOR GRAB RAILS

Each grab rail shall be non-slip, 1.25" diameter extruded polished aluminum grab rails with rubber inserts designed to provide maximum gripping ability, strength, and durability. The rails shall comply with NFPA 1900.

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GRAB RAILS, REAR STEP, VERTICAL

Two (2) extruded aluminum non-slip grab rails shall be provided and vertically mounted on the rear of the apparatus, one (1) on each side of the body.

GRAB RAIL, LH FRONT

One (1) extruded aluminum non-slip grab rail shall be provided and mounted on the front, upper, left hand side of the body.

GRAB RAIL, RH FRONT

One (1) extruded aluminum non-slip grab rail shall be provided and mounted on the front, upper, right hand side of the body.

12 VOLT ELECTRICAL SYSTEM

The truck shall have a 12 Volt electrical system.

All wiring will be run in convoluted high temperature plastic loom. Wiring shall be color and function coded and will be of adequate size to handle the assigned load. All solenoids, relays, and terminal blocks will be located in an easily accessible area.

All circuits provided shall have properly rated low voltage over current protective devices.

All wiring shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the using device shall not exceed 10 percent. The wiring and wiring harness and insulation shall be in conformance to applicable SAE and NFPA standards. The wiring harness shall conform to SAE J-1128 with GXL temperature properties. All exposed wiring shall be protected in a loom with a minimum 289 degree Fahrenheit rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.

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Electromagnetic interference suppression shall be provided as required to satisfy the radiation limits specified in SAE J551/1.

NFPA 1900 CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12 volt apparatus body electrical system shall be provided and be in compliance with NFPA 1900 testing and certification procedures as follows:

Tests shall be performed when the air temperature is between 0°F and 110°F. The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

RESERVE CAPACITY TEST

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged.

The engine shall be shut off, and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. Failure to restart the engine shall be considered a test failure of the battery system.

ALTERNATOR PERFORMANCE TEST AT IDLE

The minimum continuous electrical load shall be activated with the engine running at idle speed.

The engine temperature shall be stabilized at normal operating temperature.

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The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

ALTERNATOR PERFORMANCE TEST AT FULL LOAD

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed.

The test duration shall be a minimum of 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the warning system or a system voltage of less than 11.8 V for more than 120 seconds shall be considered a test failure.

LOW VOLTAGE ALARM TEST

The following test shall be started with the engine off and the battery voltage at or above 12 V for a 12 V nominal system.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm does not sound in less than 140 seconds after the voltage drops to 11.70 V for a 12 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

CERTIFICATION DOCUMENTATION

At the time of delivery, the OEM shall provide the following documentation:

1. Documentation of the electrical system performance tests.

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2. A written electrical load analysis, including the following:

- ◆ The nameplate rating of the alternator.
- ◆ The alternator rating under the conditions specified above.
- ◆ Each of the component loads specified that make up the minimum continuous electrical load.
- ◆ Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load.
- ◆ Each individual intermittent electrical load.

LOW VOLTAGE BATTERY CHARGER/ CONDITIONER TEST

If the apparatus is equipped with a low voltage battery charger/conditioner, it shall be tested as follows:

1. Low voltage batteries are fully charged to at least 12.66 V for a 12 V nominal system with the engine off and the shoreline disconnected.
2. Connect a DC ammeter to each output of the low voltage battery charger/conditioner.
3. Connect the shoreline to power the low voltage battery charger/conditioner.
4. Perform the test with the engine off and the shoreline power cord connected.
5. Add or apply loads to each charger output so that the output current is between 80 percent and 100 percent of the rated output current for that output.
6. Record the low voltage battery voltage and output current for each charger output at the beginning of the test and every 20 minutes.
7. Maintain the load for 60 minutes.

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8. Record the low voltage battery voltage and output current for each charger output at the end of the test with the load still applied and the charger/conditioner powered.
9. Remove any added load.

The test shall be considered a failure if the charger/conditioner does not maintain an output voltage of at least 12.54 V for a 12 V nominal system, or if it cannot maintain at least 80 percent of the rated output current for the duration of the test.

INNOVATIVE CONTROLS MULTIPLEXING SYSTEM

The electrical system shall utilize an Innovative Controls multiplexing system where applicable.

HAZARD LIGHT

One (1) flashing red LED light, located in the driving compartment, the light shall be illuminated automatically whenever any compartment door is ajar.

The hazard light shall be marked with a sign that reads "Do Not Move Apparatus When Light is On".

The warning light shall be interlocked to the parking brake and shall only alert the driver when the parking brake is released. The light shall also be used to signal that other ancillary equipment such as racks light towers etc. are not in their "ready for transport" position.

ROCKER SWITCH PANEL - EIGHT (8) POSITION

A lighted eight (8) position rocker type switch panel shall be installed to provide the ability to de-activate individual lighting units.

MASTER WARNING SWITCH

A master switch shall be included in the main rocker switch panel. The switch shall be labeled "Master Warning" for identification. The switch shall feature

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control over all devices wired through it. Any warning device switch shall automatically power up when the master switch is activated.

CHASSIS GROUND LIGHTS

Two (2) TecNiq model E10-WS00-1 LED ground lights with outward facing angle brackets shall be installed, one (1) under each chassis door.

FRONT OF BODY GROUND LIGHTS

Two (2) TecNiq model E10-WS00-1 LED ground lights with outward facing angle brackets shall be installed under the front of the body. One (1) light shall be located on the driver side and one (1) light shall be located on the officer side of the apparatus.

REAR STEP GROUND LIGHTS

Two (2) TecNiq model E10-WS00-1 LED ground lights with outward facing angle brackets shall be installed under the rear step of the apparatus, one (1) each side.

GROUND LIGHT SWITCHING

The cab and body ground lights shall activate by engaging the parking brake.

REAR ROAD LIGHTING

Two (2) sets of 4.00" LED stop, turn and back-up lights shall be provided, one (1) set on each side of the rear of the truck.

DOT MARKER LIGHTS AND REFLECTORS

LED marker lights shall be installed on the vehicle in conformance to the Department of Transportation requirements. All marker lights shall be incorporated into the headlight circuit of the cab/chassis.

Two (2) amber LED side marker and turn lights shall be provided on the apparatus lower side, forward of rear axle, one (1) each side if the apparatus is 30 feet long or longer.

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The side body panels shall be furnished with marker lights installed as follows:

- Two (2) 0.75" amber LED marker lights, one (1) on each side at the lower front corner of the body.
- Four (4) 0.75" red LED marker lights, one (1) on each side at the lower rear corner of the body.

The rear body panel, centered above the bumper, shall be furnished with marker lights installed as follows:

- Three (3) 0.75" red LED marker lights, as close as practical to the vertical centerline. Centers spaced not less than 6.00" or more than 12.00" apart.

Two (2) amber reflectors shall be provided on the apparatus body lower side, as far forward and low as practical, one (1) each side if the apparatus is 30 feet long or longer.

Four (4) red reflectors shall be provided on the apparatus rear, one (1) each side and two (2) on the rear.

LICENSE PLATE BRACKET

There shall be a license plate bracket mounted on the rear of the apparatus. A clear LED light shall be incorporated into the bracket

HOSE BED LOADING LIGHT

One (1) 12V LED hosebed light shall be installed on the front of the hosebed of the apparatus. This light shall provide illumination of the hosebed area.

WORK LIGHTS ACTIVATION

The work light(s) shall be wired to activate with the parking brake.

SIDE FACING UPPER FRONT BODY SCENE LIGHTS

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One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed. The lights shall be located on the left and right sides of the upper front portion of the apparatus body. Each light shall be supplied and installed with a chrome bezel.

SIDE FACING UPPER REAR BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed. The lights shall be located on the left and right sides of the upper rear portion of the apparatus body. Each light shall be supplied and installed with a chrome bezel.

REAR FACING UPPER BODY SCENE LIGHTS

One (1) pair of Whelen M92SLC EZ Series LED scene lights shall be installed. The lights shall be located on the rear of the apparatus body, one (1) each side. Each light shall be supplied and installed with a chrome bezel.

SCENE LIGHT SWITCHING

Three (3) rocker switches with indicators shall be provided to activate the 12-volt scene light(s). The left hand side lights, right hand side lights, and the rear lights shall each be individually switched. The switches shall be located on the cab control console.

DUAL FUNCTION SCENE LIGHT(S)

The rear scene lights shall activate automatically upon placing the transmission into reverse.

REAR VISION SYSTEM

One (1) complete backup camera system shall be provided to allow the driver to visually see the rear of the apparatus while in the cab. The system shall include a high resolution 7.00" touch screen with LED Backlight and anti-glare system with an auto dimmer. The system shall include audio transmission from the camera.

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The rear vision camera shall be wired to automatically activate when the chassis transmission is placed in reverse.

CAMERA LOCATION

The camera shall be recessed mounted in the rear of the tank, as close to the center line as possible.

The monitor for the rear vision system shall be mounted on the dash of the cab in easy view of the driver.

NFPA AUDIBLE AND LIGHTING WARNING PACKAGE

The following warning light package shall include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1900. The lighting as specified shall meet the requirements for both "Clearing Right of Way" and "Blocking Right of Way" which includes disabling all white warning lights when the apparatus is in "Blocking Right of Way" mode.

WARNING LIGHT FLASH PATTERN

All of the perimeter warning lights shall be set to the default NFPA flash pattern as provided by the warning light manufacturer.

LIGHTBAR

One (1) WHELEN model JE2NFPA 56.00" LED lightbar shall be supplied and mounted. The lightbar shall have clear lenses and contain the following modules:

Four (4) RED LIN6 LED modules, two (2) on each corner.

Four (4) RED CON3 LED modules, across the front.

Two (2) WHITE CON3 LED modules, on the front.

The forward facing white lights shall be automatically disabled for the "Blocking Right of Way" mode.

LIGHT BAR SWITCHING

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One (1) momentary rocker switch with indicator shall be installed on the switch panel in the cab to control the light bar. The switch shall be labeled "LIGHT BAR". The switch shall only be active when the master warning switch is engaged.

SIDE FACING UPPER FRONT BODY WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights shall be installed, one (1) each side of the upper front portion of the apparatus body.

The driver side warning light shall be a Whelen Model M9RC red LED with clear lens.

The officer side warning light shall be a Whelen Model M9RC red LED with clear lens.

Each light shall be mounted with a Whelen Model M9FC chrome flange.

SIDE FACING UPPER REAR BODY WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights shall be installed, one (1) each side of the upper rear portion of the apparatus body.

The driver side warning light shall be a Whelen Model M9RC red LED with clear lens.

The officer side warning light shall be a Whelen Model M9RC red LED with clear lens.

Each light shall be mounted with a Whelen Model M9FC chrome flange.

UPPER REAR WARNING LIGHTS

One (1) pair of Whelen model M9 LED warning lights shall be installed, one (1) each side of the upper rear of the apparatus body.

The driver side warning light shall be a Whelen Model M9RC red LED with clear lens.

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The officer side warning light shall be a Whelen Model M9RC red LED with clear lens.

Each light shall be mounted with a Whelen Model M9FC chrome flange.

UPPER WARNING LIGHT SWITCHING

One (1) rocker switch with indicator shall be installed on the switch panel in the cab to control the upper warning lights. The switch shall be labeled "UPPER WARNING". The switch shall only be active when the master warning switch is engaged.

LOWER FRONT WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights shall be installed, one (1) each side one the front of the chassis cab.

ONE LIGHT ON THE FRONT OF THE CHASSIS CAB SHALL BE STEADY BURN.

The driver side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

The officer side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

Each light shall be mounted with a Whelen Model M6FC chrome flange.

LOWER INTERSECTION WARNING LIGHTS

{Quantity} pair of Whelen model M6 LED warning lights shall be installed, one (1) each side of the chassis cab.

The driver side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

The officer side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

Each light shall be mounted with a Whelen Model M6FC chrome flange.

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LOWER MID-BODY WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights shall be installed, one (1) each side of the apparatus, mid-body.

The driver side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

The officer side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

Each light shall be mounted with a Whelen Model M6FC chrome flange.

LOWER REAR WARNING LIGHTS

One (1) pair of Whelen model M6 Series LED warning lights shall be installed, one (1) each side of the lower rear of the apparatus body.

The driver side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

The officer side warning light shall be a Whelen Model M6RC red Super-LED with clear lens.

Each light shall be mounted with a Whelen Model M6FC chrome flange.

LOWER WARNING LIGHT SWITCHING

One (1) momentary rocker switch with indicator shall be installed on the switch panel in the cab to control the lower warning lights. The switch shall be labeled "LOWER WARNING". The switch shall only be active when the master warning switch is engaged.

ELECTRIC SIREN AND CONTROL

One (1) Whelen model #295SLSA1 electronic siren shall be mounted in the cab. This unit shall feature an electronic air horn, wail, yelp, hi-lo and shall have a hard wired PA microphone.

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SIREN shall be located in a location that will not prevent the addition of a Q2B.

ELECTRONIC SIREN SPEAKER

One (1) Federal Signal model ES100 Dynamax 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model ESFMT with "Electric F" grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1900.

The speaker shall be located on the right hand side of the bumper.

SIREN NOISE WARNING LABEL - FAMA# 42

A permanent label shall be provided inside the driver's door warning of potential injury that could be received from the noise of the siren. The label shall also state safety precautions that should be taken when the siren is in use.

PAINT, STRIPING, AND LETTERING SECTION

PAINT PROCESS

The wet side tank shall be painted with a PPG Delfleet Evolution Paint System.

All products and technicians shall be certified by PPG every two (2) years.

The wet side tank shall be totally removed from the chassis during the painting process to ensure the entire unit is covered.

All seams shall be caulked both inside and along the exterior edges with a urethane automotive sealant to prevent moisture from entering.

The water tank and all parts shall be thoroughly washed with a grease cutting solvent prior to any sanding. After the wet side tank has been sanded, the

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wetside tank shall be washed again with a grease cutting solvent to remove any contaminants on the surface.

PAINT

The tank shall be painted to match the chassis. The tank's paint color shall be "cross referenced" from the chassis paint and shall be painted to match the main chassis color as close as possible.

PRIMING

Two (2) medium wet coats of adhesion promoter for plastics shall be applied to all surfaces to be painted.

Two (2) applications of primer shall be applied. The first application shall be four (4) coats and the second application shall be three (3) coats.

COMPARTMENT INTERIORS

The side compartment interiors shall be unpainted and in their natural finish.

WHEEL RIMS

The chassis wheels shall be as furnished by the chassis OEM. No additional finishes shall be provided by apparatus manufacturer.

REFLECTIVE LETTERING - PURCHASER SUPPLIED

Reflective lettering shall be installed by the purchaser.

REAR CHEVRON STRIPING

At least 50% of the rear facing vertical surface shall be covered with alternating strips of reflective striping. Each stripe shall be a minimum of 6.00" in width and shall be applied to the apparatus at 45° angle.

The chevron striping colors shall consist of 3M diamond grade 983-72NL Red and 983-23ES Fluorescent Yellow-Green.

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LOOSE EQUIPMENT

The following items shall be provided and shipped loose with the completed apparatus at the time of delivery:

FOLDING TANK

One (1) 3,000 gallon aluminum collapsible frame folding portable tank shall be supplied. The tank liner shall have 22 oz vinyl sides and a 28 oz vinyl floor that shall be red in color. Grab handles shall be placed on the floor of the liner to help the firefighter pick up the liner when folding.

SUCTION HOSE

Two (2) 6.00" X 10' section(s) of KOCHER, PVC type hard, suction hose shall be provided on the apparatus. The hose(s) shall be light weight type with pyrolite, long handle female x rocker lug male, NST threads. The hose shall be black in color.

ONE YEAR APPARATUS WARRANTY

The complete apparatus detailed herein shall be warranted against defects in materials and workmanship for a period of twelve (12) months, effective upon pick up or delivery of the completed apparatus to the purchaser, as detailed in the respective warranty documents. Any unauthorized alterations or modifications to the apparatus shall void this warranty.

Other warranties, as provided by individual component manufacturers may extend beyond this warranty.

STRUCTURAL WARRANTY, TEN YEAR

A structural warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the apparatus shall void this warranty.

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PLUMBING WARRANTY, TEN YEAR

A Stainless Steel Plumbing/Piping warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the plumbing shall void this warranty.

PAINT WARRANTY, FIVE YEAR

The finish paint as used on the proposed apparatus shall be warranted against defects in materials and workmanship for a prorated period of five (5) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the apparatus shall void this warranty.

TANK WARRANTY, LIFETIME

The poly type material water tank and/or foam tank provided shall be warranted for the life of the apparatus as detailed and provided by the tank manufacturer.

APPARATUS ELECTRICAL WARRANTY, TWO YEAR

The apparatus electrical system as detailed herein shall have an electrical warranty against defects in materials and workmanship for a period of two (2) years, effective upon final payment in full by the Purchaser, and pick up or delivery of the completed apparatus to the Purchaser. Any unauthorized alterations or modifications to the electrical system shall void this warranty.