



MIDWEST FIRE®

**All-Poly Series 2000 Gallon Tanker-Pumper
Specifications**

Prepared for: Stock Unit #2952

Midwest Fire Rep:

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QMS-WIN-022 Rev C

Notes: **Pump- Darley LSP**

Date	Change Order #	Op Number	Description	Rev

Special Notes-

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SECTION 1: BOOSTER TANK

1.00 "T" Tank with a Lifetime Warranty from Its Manufacturer

The All-Poly Series features a polypropylene "T" style tank. The top of this tank may be used as a hose bed, with optional dividers (see section 14). Hose beds stretch the full width and full length of the tank.

"T"-style tank fabricated from non-corrosive, stress-relieved virgin copolymer polypropylene thermoplastic material. All exterior tank joints and seams are extrusion welded. All welds conform to DVS and AWS standards. All joints, seams, and welds tested for integrity and leaks and are certified to be free from defects. The top of the tank is white with a textured finish and is fitted with removable lifting eyes designed with a 3-to-1 safety factor to facilitate easy removal

The upper rear of the tank has a transverse internal bulkhead isolated from the water carrying portion of the tank. This area may be used for wiring connections and for installing lights and grab handles. The use of external blocks for mounting equipment will be kept to a minimum providing a pleasant appearance. Wire tubes will be installed inside the tank, originating in the transverse bulkhead and terminating at the bottom of the tank. Wires for lights and equipment will not be visible from the outside of the tank.

The material thickness will be dependent upon its function. The sides, top and ends will be 3/4" (.75) thick. The baffles and fill tower will be 3/8 to 1/2" (.50) thick.

The transverse swash partitions extend approximately 4" off the floor to just under the cover. The longitude swash partitions extend from the floor to the tank through the cover to allow for positive welding and maximum integrity. All partitions are equipped with vent and air holes to permit movement of air and water between compartments. The partitions are designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well to the walls of the tank. This baffling system will be fully compliant with NFPA and the DOT regulations.

3" minimum removable clean out plug at bottom rear and bottom front of the tank.

Tank fill couplings backed with flow deflectors to disperse the stream of water entering the tank, and capable of withstanding sustained fill rates of up to 1.000 G.P.M. at 100 PSI maximum.

All auxiliary outlets and inlets must meet NFPA 1900 guidelines in effect at the time of manufacture.

1.01 Tank Size

1.01.02 All-Poly Series 2000 gallon

1.02 Rear Fill Tower

Tank has an overhead fill tower with lid, located at the rear center of tank. Fill tower is constructed of 1/2" polypropylene with minimum dimensions of 16" square. The tower has a 1/4" removable Poly screen and a polypropylene hinged-type cover with a vent overflow.

SECTION 2: HYDRANT FILLS AND TANK LEVEL

2.00 Street Side Hydrant Fill

Hydrant fill at the rear of the apparatus is equipped with a stainless-steel ball valve with integral 30-degree elbow, bleeder valve, plug holder, plug and chain.

2.00.01 Street Side 2 ½" NST

2.02 Tank Level Gauge

- Pressure transducer mounted on the outside of the tank in an easily accessible area. Sealed foam tanks (if so equipped) will require zero pressure vacuum vents.
- Super bright LED display viewable from 180 degrees with a visual indication at multiple accurate levels.
- Weather resistant connectors to connect to the digital display, the pressure transducer, and the apparatus power. Additional displays are easily integrated and will receive data from the same source as the Master Display; no additional transducers required.
- Tank level gauge indicates the liquid level on easy to read LED display.

2.02.04 One (1) Innovative Controls SL Plus Series Tank Level Gauge

2.02.04.01 Installed on the street side pump panel.

2.02.04.03 Installed at the rear street side.

2.03 Spanner Wrenches

One (1) adjustable hydrant wrench and two (2) spanner wrenches with holder.

2.03.01 Installed on the street side rear panel

SECTION 3: DUMP VALVES AND CHUTES

Newton 10" square stainless-steel Kwick-Dump Gate style (full flow) dump valves with stainless-steel flip chutes and telescopic chutes. For improved water flow, the dump valve is attached directly to the tank and not by use of a rear manifold system.

3.00 Manual Dump Valves

Manual dump valves will have a locking control handle.

3.00.01 Rear dump valve with 12" flip chute.

3.00.03 Street side rear dump valve with 36" telescoping chute.

3.00.04 Curb side rear dump valve with 36" telescoping chute.

SECTION 4: PORTABLE TANK CARRIER

4.00 Manual Tip-down Portable Tank Carrier

One (1) manual tip-down portable tank carrier for loading/unloading of a folding water tank located above the catwalk and designed to fold down over the body side. When in the up position the tank, carrier will be secured with heavy duty locking DeStaco latches. The tank carrier is constructed of 1 1/4" 14-gauge stainless-steel square tubing.

A red "Carrier down" flashing LED warning light visible to the driver will illuminate when the portable tank carrier is not in the stowed position.

4.00.04 2100 gallons, curb side

4.01 Manual Carrier Enclosure Options

All portable tank carrier enclosure options are enclosed on four sides and are equipped with two grab rails, except for the wind deflector. The wind deflector option is installed on the tank carrier towards the front, and only has one grab rail.

4.01.01 Portable Tank Carrier with front aluminum Tread-brite wind deflector.

4.06 Portable Tank

Fol-Da-Tank® portable tank with frame. The tank liner is constructed of nylon -coated material, 23 oz. side walls and a 30 oz. floor with handles installed in the floor for ease of folding. All portable tanks will have two outlets. The portable tank will be red in color and furnished with a capacity of:

4.06.04 2100 Gallons, Aluminum Frame, 135"x 29"

SECTION 5: BODY AND COMPONENTS

Sub-frame

- Integral to the tank cradle and constructed using extruded .25" thick aluminum tubing.
- Designed to support the body structure and to provide maximum support for the weight of the body and all stored equipment.

Body

- The body will be attached to the sub-frame using rigid fasteners isolated by fitted rubber bushings.
- The mounting system provides secure attachment of the body to the sub-frame while allowing enough range of movement between the two assemblies.
- The body will be enclosed on all sides and incorporate closed wheel wells and finished storage compartments.
- Stainless-steel corner guards to protect from damage on road and fire scene.
- Front lower vertical surface of body protected with aluminum Tread-brite.

Tank

- The tank is held front and rear as well as side-to-side by additional cradle structures to prevent the tank from shifting during vehicle operation.
- The tank is affixed to the cradle utilizing hat channel mounting brackets constructed of ¼" thick stainless-steel. The channels are mounted beneath the center of the tank before and after the cross members of the cradle. The channel is surrounding these members and is bolted directly to the bottom of the tank thereby securing the tank to the cradle.
- This mounting system provides a free-floating connection of the tank to the cradle which allows the chassis frame's normal movement and twist to introduce no stress upon the tank or body.

Fenders

- Fenders will be integral with the side of the body.
- Fender wells are constructed with full circular copolymer polypropylene thermoplastic inner liners for ease of cleaning and maintenance.

Materials

- The entire body is fabricated from non-corrosive, stress-relieved virgin copolymer polypropylene thermoplastic material.
- All exterior body joints and seams are extrusion welded.
- All welds will conform to DVS and AWS standards.
- All joints, seams, and welds will be tested for integrity and are certified to be free from defects.
- All joints and are 100 percent welded inside and out; no skip welding is permitted.

THE BODY WILL CARRY A LIFETIME WARRANTY FROM ITS MANUFACTURER

5.00 Fenderettes

Bright polished aluminum fenderettes are installed on the wheel wells to prevent splash and enhance appearance. The fenderettes extend approximately 1" beyond the body side and are designed to be replaced. All fasteners will not be exposed to the exterior of the fenderettes or body.

5.01 Rub Rail

The bottom edge of the entire apparatus will have an aluminum rub-rail installed to give the body, pump house, and rear step a pleasing appearance. The rub-rail is replaceable, made from solid extruded aluminum and features a reflective stripe at the rail center.

5.02 Tow Eye

The tow eye will have a 3 ½" thru hole, made from 1" thick steel, powder-coated black, and bolted directly to the frame with Grade 8, cadmium plated bolts.

5.02.01 Tow eye located ahead and below the rear step on curb side.

5.03 Cradle

An all-aluminum cradle is engineered and constructed to connect the chassis frame with the copolymer tank and body. The cradle is constructed using extruded aluminum tubing .25" thick and extruded aluminum flats .375" thick. Cradle cross members are spaced to restrict unsupported portions of the tank between cross members to a maximum of 550" squared. There are cushioned rubber extrusions placed over all tank support areas to isolate the tank from the aluminum cradle.

SECTION 6: BODY COMPARTMENTS

6.00 Street Side Compartment

- A sweep-out style compartment provided on the street side, integral to the body, constructed using white copolymer material.
- Each compartment will have an anodized aluminum roll-up door, door activated LED compartment lights, corrosion resistant vents, black Turtle Tile plastic dry decking, and floor drains.

6.00.01 Street Side Front Low Compartment

Compartment is located on the street side, ahead of the rear wheels. Approximate inside dimensions are 72" wide by 32" tall by 25" deep. (60" roll-up door approx.)

6.01 Curb Side Compartment

- A sweep-out style compartment provided on the curb side, integral to the body, constructed using white copolymer material.
- Each compartment will have an anodized aluminum roll-up door, door activated LED compartment lights, corrosion resistant vents, black Turtle Tile plastic dry decking, and floor drains.

6.01.01 Curb Side Front Low Compartment

Compartment is located on the curb side, ahead of the rear wheels. Approximate inside dimensions are 72" wide by 32" tall by 25" deep. (60" roll-up door approx.)

SECTION 7: RUNNING BOARDS, CATWALKS, AND REAR STEP

7.00 Running Boards

A 12" wide running board is located at the base of the pump house and is made from Diamondback® deck plate and includes a replaceable extruded aluminum rub rail.

7.01 Catwalk

Catwalks are located above the street and curb side compartments, made of polished aluminum Tread-Brite and bent at a 30-degree angle to provide a drip rail.

7.02 Rear Step

The 12" deep rear step is NFPA compliant and made of top of the line Diamondback® extruded aluminum deck plate with a 7" tall kick plate. Rounded polished aluminum castings installed on the corners of the step.

SECTION 8: GRAB RAILS AND FOOT STEPS

8.00 Grabs Rails

The grab rails are made of 1 ¼ " diameter extruded aluminum tubing with knurled finish and chrome plated stanchion brackets.

8.00.01 Tank Grab Rails

Vertical grab rail(s) provided at the rear. (add separate grab rails for each side)

8.00.01.01 Two (2) Grab Rails, one (1) street side and one (1) curb side.

8.00.03 Control Panel Grab Rails

There are two (2) horizontal grab rails provided, one on each side, above the pump control panels, and below the cross lays for ease of loading and unloading the hose cross lay.

8.00.04 Tank Grab Rail - Street side

There is one (1) grab rail located on street side of tank in the upper front corner for ease of loading and unloading hose cross lays.

8.00.05 Tank Grab Rail - Curb side

There is one (1) grab rail located on curb side of tank in the upper front corner of tank for ease of loading and unloading hose cross lays.

8.01 Folding Access Steps

As per NFPA 1901 standards, all steps are a minimum of 35" square

8.01.01 Upper Level Hose Bed Folding Steps

There are two (2) sets of large chrome plated folding steps with polished stainless-steel kick-plates provided at the rear of tank for access to the hose bed area.

8.01.02 Front Folding Steps - Street side

Large chrome plated illuminated folding steps are provided at the front on the street side, for access to the catwalk area. The steps are a minimum of 35" square.

8.01.02.01 Quantity one (1)

8.01.03 Front Folding Steps - Curb side

Large chrome plated illuminated folding steps provided at the front on the curb side, for access to the catwalk area. The steps are a minimum of 35" square.

8.01.03.01 Quantity one (1)

8.01.04 Lower Level Rear Folding Steps

Large chrome-plated illuminated folding steps provided at the rear for access to the catwalk area. The steps are a minimum of 35" square with polished stainless-steel kick-plates. Other locations available below.

8.01.04.01 One (1), Curb Side

8.01.04.02 One (1), Street Side

SECTION 9: ELECTRICAL EQUIPMENT

9.00 Electrical System

- The electrical system will utilize Class1 Inc. ES-Key™ technology, UltraView™ displays and 1Touch switch modules, where applicable.
- The apparatus is equipped with a Class 1 ES-Key Management System for controlling electrical system devices. This management system can perform load management functions, system switching, monitoring and reporting, and be fully programmable for a standardized electrical system utilizing the ES-Key Professional software program.
- The ES-Key system incorporates the functions of the Vehicle Data Recorder and Seat Belt Monitor, eliminating the need for a separate system.
- The ES-Key system utilizes a Controller Area Network (J1939) protocol to provide multiplexed control signals for "real time" operation. The system consists of a main control module (Universal System Manager or Supernode II) and the appropriate combination of Power Distribution Module(s) (PDM), Switch Input Module(s) (SIM), and other I/O modules as required for the application.
- Optional system enhancements may include the UltraView™ 700 display, the UltraView 450 display and 1Touch switch modules for increased graphic user interface.
- Supernode II™

The apparatus is equipped with a Class1 ES-Key™ system with a Supernode II™ high density input output node. The Supernode II™ has (24) inputs, (24) outputs, a Universal System Manager, a data logger, programmable special utilities, and select J1939 engine and drive train message reception with ES-Key™ I/O association. It must be sealed to IP-67 and have integrated power connections.

The Supernode™ has (18) positive and (6) negative outputs. Each positive output is capable of 13-amps continuous duty. The negative outputs are capable of 2-amps continuous duty. Supernode II™ outputs contain features such as digital circuit breaker, flash capability, PWM capability and open load detection.

The Supernode II™ special utility functions include timers (delay on/off and one shot), counters, bi-stable switches, and select J1939 broadcast messages. The Supernode II™ has an integrated USB port to allow for direct connection to the ES-Key system without additional interface devices.

The Supernode II™ has an integrated Load Manager. The Load Manager sequencer assures that loads are applied and removed gradually, thus eliminating the possibility of inducing failures in the vehicle's equipment.

The load manager is a precision, solid state controller which sequentially switches "ON" multiple circuits at 1/2 second intervals. Individual switches enable the user (Driver) to select output "ON or "OFF" status, at any time. The sequencer is initiated by the "Emergency Master" switch. The sequencer priority is programmed based on option content.

The Load Manager monitors the vehicles battery voltage. Loads may be shed at any voltage at one tenth of volt increments. A low voltage warning may be set at any set point (usually 11.5 volts). The load manager can shed any output that is controlled by the system (there is no limit to the number of loads that may be managed by the network). The load shed priority is set by the circuit significance, followed closely by circuit draw. The Load Manager sheds loads until the voltage level begins to rise.

- Voltage Monitor: A voltage monitor is built into the ES-Key electrical system. It activates a warning when the alternator output voltage falls below any desired voltage (usually 11.5 volts).
- UltraView™ 700 Display

The apparatus is equipped with the UltraView™ 700 display (UV700). The UV700 is a 7-inch, full color LCD display, with (14) buttons and touch screen capability with (2) J1939 CAN Bus connections and (3) NTSC/PAL video inputs. It is bonded for direct sunlight viewing, sealed to IP67 and mounted in either the flush, pedestal or rear-mount position.

The UV700's switches are configured to allow for the control of emergency master and non-emergency master functions and are completely configurable via the ES-Key™ Professional software. Switches are set to act as momentary, maintained or three-way switches without any physical hardware change. All switches and or indicators may be configured as touch screen inputs into the ES-Key™ system. The (14) buttons are blue LED backlit.

- 1Touch Switch Modules

The apparatus is equipped with the appropriate quantity of 1Touch switch modules for enhanced device activation. The 1Touch switch module has a 4-button, configuration to accommodate specific apparatus requirements. Individual switches are backlit with multiple colored and textured switch caps and printable labels. Switch panels are sealed to IP67 and have dual LED indicators. Each switch position's back light may be individually controlled allowing for the specific switch position to be used as an indicator. Each switch pair can be configured momentary, maintained, toggle or a dimmer. Panels can be included in network dimming.

9.01 DOT Lighting Details

- A total of nine (9) LED clearance lights and seven (7) red LED lights installed at the rear.
- Two (2) amber LED lights are installed on the front street and curb sides.

- Reflectors are installed per DOT specifications.
- A red warning light visible to the driver in the chassis cab that illuminates when a compartment door is ajar/open.
- An illuminated license plate bracket installed at rear.

9.02 Lower Level Rear Lighting

9.02.01 Quad-cluster Tail Light Package

Two (2) LED Quad-Cluster combination red LED stop/tail, clear halogen backup light, amber LED arrow type turn signal, and red LED warning light, installed at the rear. Light assemblies provided in chrome plated housing.

9.02.01.01 Whelen SurfaceMax C6 Series Quad-Cluster

9.06 Power Distribution Options

9.06.06 12V Power Strip

A 12V Battery Power, 4 position overload/short protected terminal strip.

9.06.06.09 Center Console, Inside

SECTION 10: EMERGENCY SIREN AND LIGHTING EQUIPMENT

10.00 Apparatus Control Center

All emergency lighting, options, and accessories are controlled at a master control center in the cab.

The apparatus control center:

- Controls all warning lights and scene lights
- Includes the "Master On" and "Open Door" and other optional indicator lights
- UV700 Multiplex display – If equipped.
- Controls other optional functions if equipped. (I.E. Electric Dump Valves, Pump Shift)
- Mounted Electronics, Sirens, and Radios – If equipped.
- Features lighted identification plates on a non-glare panel face that clearly identify each switch and its function.
- Top plate bolted on for maintenance and adding additional items.
- Control Centers will require that there is no seat in between the driver and passenger seats.

All warning packages are fully NFPA compliant and certified by the lighting component manufacturer to meet all requirements.

10.00.01 Center Console for Freightliner Chassis

10.01 Light Bars:

The light bar is mounted on the cab roof.

10.01.01 Whelen model JE2NFPA Justice Series light bar

Whelen model JE2NFPA Justice Series, Super-LED low-profile, 56" long. Covers front and front side zones. The light bar has four (4) linear corner modules with nine (9) Super-LED light heads per module, and six (6) CON3 modules with three (3) CON3 Super-LED light heads per module.

10.01.01.01 Whelen JE2NPFA Justice Series, Red

10.02 Sirens:

10.02.01 Whelen Siren

Whelen Siren 200-watt, six (6) function Class A electronic siren, mounted in the chassis cab in a location convenient to the driver. The electronic siren includes full function, 17 Scan-Lock siren tones, and hard-wired microphone. The siren control is lighted for easy night operation. Cast aluminum speaker available with three (3) siren mounting locations.

10.02.01.02 Whelen 295SLSA1 siren w/ speaker flush mounted street side

10.04 Lower Level Lights

10.04.03 Front/Rear Whelen SurfaceMax C6 Series LED

Two (2) Whelen SurfaceMax C6 series lights mounted to the grill of the chassis and two (2) mounted on the rear of the body in the quad-cluster with a chrome trim ring.

10.04.03.01 Front/Rear Flashers, Red, SurfaceMax C6 LED

10.05 Intersection Lights

All lights mounted 18" above the ground, and no higher than 60", (preferably centered in the reflective striping if present). One (1) positioned as far forward on the hood as possible, and if an extended bumper is present on the truck, it will be installed on the side of that. One (1) positioned behind the cab but in front of the rear wheels if three (3) lights per side are requested, and one (1) positioned as close to the rear of the truck as practical. Lights will include a chrome bezel.

10.05.01 Intersection, Red, SurfaceMax C6 Series LED, Two (2) each side

10.06 Upper Level Rear Warning/Scene Lights

10.06.05 Whelen M9V2R/M6V2R

Whelen M9V2R/M6V2R Series Combination LED Scene Light/Flasher with chrome bezel.

10.06.05.01 Side/Rear Scene/Flashers, Red, M9V2R Series, One (1) on each side above the side dump valves and two (2) M6V2R on the rear. (Four (4) Total)

10.07 Scene lights

Scene Lights are controlled from the control center located in the chassis cab and a One Touch switch pack located on the pump panel. Lights will include a chrome bezel.

10.07.05 Automatic Reverse Scene Wiring

Rear scene lights will be wired to illuminate when chassis is placed in reverse.

10.09 Ground Lights

10.09.01 Four (4) ground lights

There are four (4) LED ground lights installed to illuminate the area below the apparatus. Two (2) lights are installed on street and curb side below the front body, and two (2) lights are installed on street and curb side below the rear step area. Ground lights will be activated when parking brake is applied.

SECTION 11: PAINTING, LETTERING, STRIPING, AND SIGNS

11.00 Painting process

The entire tank, body, and components will be washed, sanded, prepped for primer, cleaned, and primed with PPG urethane primer filler. The body will be hand sanded and color match painted using a PPG Deltron base coat/clear coat paint. After paint is applied and properly cured the apparatus will be color sanded and buffed to a high gloss. The paint process is approved by PPG.

11.00.01 Color Matched Red

11.00.01.02 Color Matched Red, 2000 gallon

10-YEAR WARRANTY ON PAINTED BODY PARTS

11.01 ID plate

There is a permanent plate located in the center top chassis cab with the following information:

Quantity and type of fluids used in the vehicle. This plate includes:

- Engine oil, quantity.
- Engine coolant, quantity.
- Chassis transmission fluid, quantity.
- Pump transmission fluid, quantity.
- Drive axle lubrication fluid, quantity.
- Air conditioning refrigerant, quantity.
- Air conditioning lubrication oil, quantity.
- Power steering fluid, quantity.
- Front and rear cold tire pressure
- Number of personnel the vehicle is designed to carry located in an area visible to the driver.
- Height and length of the vehicle in feet and inches
- Gross vehicle weight rating (GVWR) in pounds

11.03 Vinyl Lettering

11.03.01 Provided on the chassis doors.

11.03.03 Provided for the customer unit number on the street and curb side chassis fenders.

11.05 Reflective striping

The apparatus body and chassis will have a reflective stripe on each side and the front per NFPA 1901 standards.

11.05.01 4" wide white reflective stripe with a 1" wide white reflective stripe spaced approximately 1/2" above.

11.05.01.01 Single Axle

11.05.03 White reflective tape inside chassis doors- Per NFPA 1901 standards any door designed to allow persons to enter or exit has a minimum of 96 square inches of retro-reflective material affixed to the inside of the door.

11.06 Rear Chevron

11.06.04 Diamond Grade Chevron 100%

Per NFPA 1901 standards, 100 percent of the rear will include red and fluorescent yellow diamond grade chevron retro-reflective striping installed, with each stripe a minimum of 6" wide.

SECTION 12: CORROSION PROTECTION AND MUD FLAPS

12.00 Corrosion Protection

The All-Poly Series body has several features which prevent corrosion.

- All fasteners are stainless-steel where applicable
- All fasteners which are used in aluminum are plated with Magnaguard 560 to prevent galvanic corrosion resulting from dissimilar metals.
- All contacts of dissimilar metals are insulated with 3M products to prevent galvanic corrosion.
- Rub rails are Type II bright dip anodized.
- Tow rings are cadmium plated steel.
- The Poly body material eliminates the need for undercoating and sprayed on coating inside storage lockers.
- The Poly body material is non-corrosive and is frequently used for storing acids.
- The Poly body material eliminates many possibilities of dissimilar metal contact caused by galvanic reaction.
- The pump house frame is made from 304 series Stainless-steel which resists corrosion better than aluminum.

12.01 Mud Flaps

There are two mud flaps installed behind the rear wheels.

- The mud flaps are ¼ inch thick black rubber.
- The bottom of the mud-flaps are fitted with chrome weights.

SECTION 13: PUMP AND PLUMBING

13.00 Pump House

13.00.01 Side Control Pump House

The pump compartment features:

- The superstructure frame is made from .125" wall X 2.00" square type 304 brushed 4B finish stainless-steel tubing.
- The front and a portion of the rear of the pump compartment is made from type 304 brushed 4B finish stainless-steel sheets to enclose the perimeter of the water pump.

- The street and curb sides of the pump compartment are equipped with side running boards. The running boards extend along the width of the pump compartment from the rear of the chassis cab to the forward end of the body module. The running boards are constructed of Diamondback® deck plate.
- Pump side panels are covered with black protective material.
- Running boards include extruded aluminum rub rail extending the length of the running boards.
- The step surfaces comply to applicable sections of NFPA 1901 requirements.

13.03 PTO Driven Pump

PTO Pumps have the following standard features:

- All PTO driven pumps have pump-and-roll capability.
- Helical design and precision-cut gears to reduce noise and minimize wear
- Double seal ring design solid bronze impeller
- Stainless-steel pump shaft
- Maintenance free mechanical seal
- The street and curb side pump panels and access doors are constructed entirely of aluminum and be covered with black protective material.
- The pump compartment has full width vertically hinged access doors located on the upper portion of the street and curb side pump compartment.
- A latch is furnished to hold the doors closed and have a retainer attached to prevent over extension of the opened door.
- The pump operator panels are to be completely "bolted" or hinged in place for ease of removal.
- A full panel width LED light hood is provided to illuminate the street and curb side pump panels.
- A service light is provided to illuminate the interior of the pump compartment. Lights are controlled by the operator's panel light switch.
- The operator's panel include the following gauges:
- 2 1/2" 400# liquid filled stainless-steel individual discharge pressure gauges and control handles.
- One (1) 3 1/2" Master Discharge Gauge and one (1) 3 1/2" Master Pump intake gauge.
- Color-coded pump panel identification labels are provided for all gauges, controls, connections, switches, inlets, and outlets.
- The intakes have a removable strainer provided and chrome plated caps.
- Pump shift is electric operated and incorporates standard automotive shifting mechanism for ease of maintenance.
- The pump shift switch is mounted in the cab and identified as "PTO Engagement". The pump shift assembly includes an indicating light to show when the PTO has been engaged.
- A master manifold type drain valve is provided with all pump drains connected to it and operate from the pump operators panel, so the entire pump system may be drained by a single control.
- Per NFPA 1901 standards there shall be pump system test ports mounted on the pump panel.
- All discharges and pre-connects with an 1 1/2" or larger valve, per NFPA 1901 standards, shall have drains or bleeder valves, having a minimum 3/4" pipe thread connection, for bleeding off pressure from the hose connection to the outlet.
- Per NFPA 1901 standards there shall be a suction relief valve installed on the intake sides of the pump, terminated with a NST male threads.

13.03.05 Darley LSP 1000 PTO Pump

All the plumbing and/or piping in the pump compartment will be constructed of 304 stainless-steel or flexible piping for long life. Stainless-steel castings are a minimum of schedule 40, and all NPT pipe thread connections larger than ¾" connections are avoided in the construction of the plumbing system. The following valves shall have groove connection: rear discharge, tank fill, all 2" and 2-½" pre-connect valves.

Pump Ratings:

1000 GPM @ 150 PSI

700 GPM @ 200 PSI

500 GPM @ 250 PSI

13.03.05.01 Darley LSP 1000 PTO, Side Control, 36" Pumphouse

13.03.25 PTO Auto Governor Options

13.03.25.01 Fire Research "Pump Boss 400 Series Auto Governor"

- Features:
 - Discharge pressure in PSI.
 - Pump adjustment back idle.
 - Engine monitoring of oil pressure, water temperature, battery voltage, and engine RPM.
 - Preset function for instant and reliable operation.
 - Overheat pump protection system.

13.05 Primer Pump Options

13.05.02 Trident Primer Pump, Manual w/Gauge

The Trident Air Primer is a pneumatically operated, oil-less primer system. The priming system has a 3-barrel, bronze construction, has no moving parts, and is NFPA Compliant. It uses compressed air supplied from the chassis. Primer is actuated via push button, with a gauge to indicate feet of lift. Extra engagement switches are actuated with just a push button.

13.05.02.01 Primer to Pump

13.06 Suction Intakes

On all pumps, an intake suction relief shall be provided per NFPA 1901 standards. It will be terminated with a 2 ½" NST male adapter.

13.06.01 2 ½" Gated Intakes

Each intake consists of a 2 ½ " NST female chrome plated swivel intake located on the pump panel. The intake has a 2 ½ " valve, swivel adapter with screen, chrome plated plug and chain.

13.06.01.01 One (1) intake, street side

13.06.02 Non-Gated Master Intakes

Master intakes are plumbed out both sides of the pump house and capped with a chrome long handled cap.

13.06.02.02 Two (2) 5" intakes

13.07 Discharges

Discharges include:

- Tee Handle Control
 - 2 ½" 400 PSI Liquid Filled Stainless Pressure Gauge
 - 30 Degree Elbow, cap and chain
- 13.07.01 Side Control Pump Panel Discharges
- 13.07.01.02 Two (2) 2 ½" Discharge, Street Side
- 13.07.01.03 One (1) 2 ½" Discharge, Curb Side

13.09 Tank Fill/ Tank to Pump

13.09.01 Tank Fill Valve 2"

A 2" tank fill/pump re-circulating line provided from the pump to the water tank, with a 2" valve and a 2" high-pressure flexible hose.

13.09.03 Tank to Pump 3"

A 3" tank to pump line provided from the water tank to the pump, with a 3" valve and tee handle controls, and 4" plumbing with flexible connection.

13.11 Pump House Heat Control

13.11.07 Pump Compartment Seal

A rubber seal provided between the rear of the pumphouse and the body.

SECTION 14: HOSE TRAYS, PRE-CONNECTS AND CROSS LAYS

14.08 Hose Cross Lay

- The hose cross lay provides an area for pre-connected hose cross lays and/or hose storage.
- The cross lay is constructed of a 1" thick polypropylene/polyethylene floor designed to provide drainage and ventilation to the cross lay area.
- Front and rear are constructed of 1/8" aluminum.
- Side Kick Cross Lay is a pocket above the pump compartment, equipped with a poly slide out tray, built to hold 150' of 1 ¾" hose.

14.08.01 Hose cross lay above Side Control Pump

14.09 Pre-connected Cross Lays

- Cross lay is pre-connected via NST swivel male gated with a ball valve.
- Pre-connect has a 2 ½ " 400psi liquid filled stainless-steel individual pressure gauge and control handle.

14.09.02 Two (2) 1 ½ " NST male pre-connects, 2" valve

14.10 Cross Lay Options

14.10.01 Cross Lay Divider

Hose cross lay is equipped with adjustable divider constructed of 3/16" aluminum.

14.10.01.02 Two (2) Cross Lay Dividers

14.10.04 Cross Lay Vinyl Cover

Heavy-duty flame-retardant vinyl cover with mesh ends is supplied and custom fitted to the apparatus cross lay. The cover is attached with shock cord to retain the cover during travel as required by NFPA.

14.10.04.01 Black Cross lay Cover

14.11 Hose Bed

14.11.00 10" Hose Bed

Hose bed runs the full length and width of the tank and is approximately 10" tall to accommodate NFPA hose loads. The floor of the hose bed is grooved to allow the loaded hose to drain and provide ventilation. The floor is fabricated from UV stable white polypropylene. Inverted T slot are machined into the floor at three points to accommodate adjustable hose dividers.

14.11.01 Hose Bed Divider

The hose bed has adjustable divider made from copolymer. The rear of the divider will have slot cut in that can be used for a hand grip

14.11.01.02 Two (2) dividers

14.11.02 Hose Bed cover

Heavy-duty vinyl hose bed cover is supplied, and custom fitted to the apparatus hose bed. The cover is attached across the front of the hose bed with a rail and bead system to prevent wind from getting under the cover, with a flap to cover the back of the hose bed and has a quick release elastic rope to retain the hose in the bed during travel as required by NFPA. Cover is fabricated from 100 % polyester. Operating temperature is -40F to 180F.

14.11.02.01 Black Hose Bed Cover for 2000

SECTION 15: EQUIPMENT STORAGE AND MOUNTING

15.00 Equipment Mounting Systems

15.00.06 Two (2) trays located on the street side of the tank.

15.00.06.03 Fits 5"-6" Suction Hose.

SECTION 17: CHASSIS ACCESSORIES

17.01 Hub and Lug nut covers

Stainless-steel hub and lug nut covers are installed on front and rear aluminum wheels

17.01.02 Single axle chassis.

17.04 Shoreline Connection, Kussmaul "Auto Charge 1000"

One (1) 115 Volt Kussmaul "Auto Charge 1000" battery charger system installed.

17.04.01 Manual shoreline connection, front sill of front street side locker.

17.08 Air Horns

Two (2) Stutter Tone air horns mounted one (1) on each side of the hood. Steering wheel horn switch will control the air horns.

17.08.00 Two (2) Air Horns installed on each side of the hood.

17.08.04 One (1) foot switch located on the passenger side floor.

17.10 Accessories

17.10.01 Tire Pressure Indicators

Tire pressure indicators installed to allow for inspection of pressure at the tire.

17.10.01.01 Tire Pressure Indicator for Single Axle Chassis

17.10.04 Heat Exchanger

A Heat exchanger permits the use of water from the pump to cool the engine. Cooling is done without mixing the engine antifreeze and the pump water.

17.10.04.01 OEM Installed

17.11 Chassis Exhaust

17.11.01 Standard Chassis Exhaust Modifications

Chassis exhaust is modified to exit passenger side ahead of the rear wheels and vent outwards from the edge of the body. A heat shield will be fabricated from aluminum and installed between the body and the exhaust pipe. OEM supplied exhaust tip will be used when applicable.

17.11.01.01 Freightliner Exhaust Modifications

SECTION 18: LOOSE EQUIPMENT

18.08 Wheel Chocks

18.08.01 Two (2) Wheel Chocks, with Holders, Placed into Spare Compartment.

18.10 PVC flexible hard suction hoses

18.10.05 Two (2) 5" x 10'

SECTION 19: CHASSIS

19.00 Midwest Fire Equipment furnished per specification attached:

Chassis Summary			
Manufacturer	Freightliner	Cab to Axle (in.)	150"
Model	M2-106	Wheel Base (in.)	216"
Engine Manufacturer	Detroit Diesel	Front Axle Rating (Lbs.)	14,600#
Engine Model	DD 8	Rear Axle Rating (Lbs.)	27,000#
Horsepower	375	Paint Color Code	Med Red Elite B/C

SECTION 30: RESTRICTIONS

30.01 Maximum Height

- 30.01.01 No Restrictions
- 30.01.02 (Restrictions)

30.02 Maximum Length

- 30.02.01 No Restrictions
- 30.02.02 (Restrictions)

