

W.S. Darley & Co.



FIRE APPARATUS SPECIFICATIONS

*1000 GPM CAFS (LSMC) Vision Series
Rapid Eagle Pumper on F750 Ford 4-door*

*For
Caribbean Fire Departments*

00-00-6000 February 24, 2020

GENERAL INFORMATION

These specifications are a detailed description of the apparatus, and equipment (if specified), to be furnished by W.S. Darley & Co. and is intended to outline the quality and design of the apparatus desired.

The apparatus covered by this specification shall be new, unused, and the latest production design and that which is furnished to Fire Departments in general.

00-01-0000 This apparatus shall be constructed in its entirety within the continental United States.

00-01-0700 **FIRE APPARATUS SPECIFICATIONS**

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ADMINISTRATION

00-05-1000

PRODUCT QUALITY AND WORKMANSHIP

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 (as applicable).
- 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.

00-15-0600

PAYMENT REQUIREMENTS

00-16-1500

See payment terms as agreed between Darley and Customer, per LC.

00-50-0600

DRAWING REQUIREMENTS

00-50-4000

CONSTRUCTION APPROVAL DRAWINGS

Prior to construction, two (2) sets of apparatus drawings shall be supplied to the purchaser. The drawings shall include left side, right side, top, front and rear views of the apparatus.

Critical dimensions such as overall height, overall length, body width, cab dimensions, pump module dimensions (when applicable), compartment dimensions, and overall body dimensions shall be on the drawings.

Water tank size (when applicable) and pump gpm (when applicable) shall also be stated on the drawings.

The purchaser shall review the drawings. Any discrepancies and/or mutually agreed upon modifications shall be noted on the drawings. The purchaser shall return one complete set of drawings, with authorized approval signature(s), to the Darley representative.

00-55-0700

WARRANTY REQUIREMENTS

00-55-1400

WARRANTY

The following warranties shall be provided:

00-60-2200

ONE YEAR DARLEY APPARATUS WARRANTY

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The Darley apparatus 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 apparatus to the destination, as found in the available warranty document.

00-65-0600

DEMONSTRATION REQUIREMENTS

00-65-6500

DEMONSTRATION AT PURCHASER (not included)

Upon delivery of the completed apparatus, a minimum of one Darley authorized, and trained individual shall conduct a demonstration session or sessions for purchaser personnel. Demonstration shall include all aspects of apparatus operation. The demonstration schedule shall be mutually agreed upon by the purchaser and the manufacturer's representative.

00-66-8000

PREPARATION FOR APPARATUS EXPORT

Upon completion of the Darley apparatus and in preparation to transport the apparatus to the port of sailing, the apparatus shall be coated with a special shipping material to protect the exterior finish while sailing.

The material shall reduce the threat of corrosion due to salt spray and other harmful occurrences during overseas transit. The material shall be removable with petroleum solvents and emulsion cleaners.

00-66-6800

APPARATUS UNDERCOATING

The apparatus shall be undercoated as needed for export for ocean freight.

00-68-0500

MANUAL AND DATA REQUIREMENTS

00-68-4500

FIRE APPARATUS DOCUMENTATION

At the time of delivery, Darley shall supply the following:

---Two (2) copies of the manufacturer's record of construction details.

---Two (2) sets of operation and service documentation/manuals, as available.

NOTE: It is requested that the operation and service manuals each contain a wiring diagram; a module plumbing diagram; and a parts catalog. NOTE: The parts catalog portion shall be furnished only as available from each chassis manufacturer, and as available (if available) from other component vendors and from Darley.

FACTORY COMPLETE CERTIFICATE

A Darley factory complete fire truck certificate shall be supplied.

00-68-5000

VIDEO

One (1) video shall be provided for the general operation and general maintenance; for the chassis, the CAFS module, electrical lighting, the body, and water/foam tanks.

00-80-0500

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CHASSIS PROVIDER

00-80-2000

The chassis, as detailed in these specifications, shall be ordered and supplied by Darley. The chassis portion of the contract shall be paid for as detailed in the Darley proposal and contract verbiage.

00-99-2500

MANUFACTURER RIGHTS

The Darley Company reserves the right to incorporate the latest technology or standards, including changes to features and brand names, or model or equipment being supplied.

05-05-1750

CHASSIS SPECIFICATIONS

MODEL

The chassis shall be a Ford F750 four door 4x2 chassis
The wheelbase shall be 212"
The CA shall be 102"

The front GVWR shall be 12,000 lbs
The rear GVWR shall be 23,000 lbs
The wheels are painted steel wheels
Goodyear Endurance 11R22.5 tires

Air brakes with Bendix ABS
65 gallon aluminum fuel tank
Heavy duty dual alternators (357 Total Amps)
Three batteries (2700 CCA Total)

The engine shall be a Ford 6.7 L 330 hp diesel engine
The transmission shall be a Ford TorqShift 6 speed automatic transmission

The cab has an individual driver bucket seat and officer bucket seat
The cab has a 60/40 crew bench seat in rear with flip up cushion and fold down back

AM/FM stereo radio with auxiliary input audio jack and clock with speakers

Chrome bumper
Chrome grille

Fire/rescue prep package

07-00-1000

The paint shall be one color: Ford Vermillion Red

CHASSIS MODIFICATIONS

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

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07-00-1100

FRONT TOW HOOKS

Two (2) front tow hooks shall be provided and shall be bolted to the frame, behind the front bumper.

07-00-1150

BOSTROM CAB SEATS

The officer seat and the crew seating provided by Ford shall be replaced as follows:

---One (1) Bostrom 450 officer SCBA seat with seat switch and Load & Lock bracket on riser

---Two (2) Bostrom 400CT rear crew SCBA seats with seat switch and Load & Lock bracket on three person riser

---One (1) Bostrom single rear crew 400CT SCBA seat with seat switch and Load & Lock bracket on three person riser (mounts between the two crew seats)

NOTE: The Darley "D" logo shall be on the seat backs.

07-00-1200

UREA LOCATION

The Urea fill port shall be behind an access door. It could be relocated to achieve this. If relocated, the exact location to be determined by Darley Engineering and shared with the customer.

07-02-8200

CONTROL CONSOLE BETWEEN SEATS

A control console shall be installed, on the cab floor, between the driver and officer seats.

The top shall be hinged to allow easy access to components and wiring inside the console.

The top of the console shall contain items such as the rocker switch panel and door and accessory ajar lighting. It shall also contain the electronic siren head, and generator controls (as applicable).

07-02-9900

FOG LIGHTS BUMPER

Two (2) approximate 4" x 5" amber fog lights shall be installed, recessed in the bumper, one each side, and shall be switched from the cab.

07-28-2310

NFPA COMPLIANT TREADPLATE RUNNING BOARDS

USA NFPA compliant running boards, including compliance with stepping depth and abrasiveness, shall be provided. The running boards shall be fabricated from bright aluminum embossed treadplate, and shall be supplied and installed below the cab doors.

The running board height, from the ground to the top of the first step shall be approximately 22" to 23" from the ground, but not to exceed 24". This height shall closely line up with the running boards on the pump module (when present) for a clean streamlined appearance.

A bright aluminum diamond plate vertical back splash, from the top of the running board to below the cab shall be provided and installed. The back splash shall be mounted to allow for independent movement of the cab.

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NOTE: There shall be no exceptions to this requirement.

07-30-1500

MASTER SWITCH - CHASSIS ON/OFF

A master switch shall be provided inside the cab on the floor along side of the driver's seat just inside the driver's door in a convenient location. This switch shall cut all 12 volt power to the fire related body and pumping accessories. This master switch shall include a green colored master switch "on" pilot light.

07-37-1000

HIGH IDLE FEATURE

A high idle switch shall be mounted on the dash or in the center console near driver controls. The high rpm shall be preset to a specified rpm. A light shall be provided when the switch is activated.

07-50-6000

STAINLESS STEEL WHEEL COVERS

One (1) set of stainless steel RealWheels wheel covers shall be installed on the chassis wheels. Stainless steel lug nut covers and valve stem extensions for the inner rear dual wheel shall be included.

07-52-2200

REAR MUD FLAPS

Two (2) black hard rubber mud flaps shall be installed behind the rear wheels, one each side.

07-80-0200

CHASSIS EXHAUST

The chassis exhaust pipe shall discharge at rear wheels as provided with the chassis. A heat shield shall be provided between the pipe and the bottom of the body compartment.

07-90-0500

BACK-UP ALARM

One (1) electronic back up alarm shall be provided at the rear of the apparatus. The alarm shall sound when the transmission is placed in reverse.

07-95-0500

IDENTIFICATION DATA PLATE

An identification plate shall be installed in the driver's area of the cab, specifying the quantity and types of fluids used in the vehicle (as applicable):

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid
- Drive axle lubrication fluid
- Air conditioning refrigerant
- Air conditioning lubrication oil
- Power steering fluid
- Cab tilt mechanism fluid
- Transfer case fluid
- Equipment rack fluid
- Air compressor system lubricant

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--- Generator system lubricant

The ID plate shall also include the following:

- 1.) Build Date
- 2.) Delivery Date
- 3.) Paint Information
- 4.) VIN Number

07-95-5000

SPARE TIRE AND WHEEL

One (1) spare tire and wheel shall be furnished.

09-00-0050

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PUMP, MODULE, AND RELATED ITEMS

17-00-0750

SIDE DESIGN PUMP OPERATOR'S PANEL & MODULE

17-02-1000

SIDE PANEL MODULE

A pump operator's side panel pump module shall be provided. It shall be assembled and mounted independently from both the chassis and the body, to allow sufficient flexing and prevent component fatigue. The module shall be constructed using square aluminum tubing. The welded ends of the tubing shall be chamfered prior to welding and shall be ground smooth. A heavy duty isolation material shall be provided between dissimilar metals during the mounting process.

17-10-3000

SIDE OPERATED PUMP PANEL

The pump operator's control panel shall be located on the left side of the pump module.

PANELS

The pump panels shall be removable.

TRIM RINGS

All suction and discharge ports shall be fitted with removable polished stainless steel trim rings.

GAUGES AND CONTROLS

All controls and gauges shall be functionally grouped and installed to allow easy access for service and replacement.

17-10-5200

Gauges (and/or flowmeters if present) shall be located as nearly adjacent to the valve control as possible.

SIDE PANELS

The pump compartment module shall have left and right side pump panels constructed of brushed stainless steel sheets. The side pump panels shall be removable.

17-30-1500

GAUGE PANEL - STAINLESS STEEL

The pump operator's upper gauge panel shall be located on the left side pump module above the main control panel. It shall be constructed from brushed stainless steel. It shall be vertically hinged and shall have two latches.

17-30-2500

ACCESS PANEL - STAINLESS STEEL

There shall be a hinged upper access panel located above the main pump panel on the right side pump module. It shall be constructed from brushed stainless steel. It shall be vertically hinged and shall have two latches.

17-35-4000

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COLOR CODED LABELS

A set of color coded and function described labels shall be provided for the pump operator's controls, gated inlets, discharge outlets, drains, and pressure gauges (as applicable). The labels shall be a high quality plastic material with a durable adhesive on the back.

The labels shall be provided in a language other than English. Details of the alternate language and function descriptions shall be approved prior to assembly.

17-32-1000

PUMP PANEL LIGHT SHIELD (LED) LEFT

One (1) polished extruded aluminum light shield assembly shall be provided above the left side pump panel area. There shall be LED lights installed within the shield. A switch, located on the pump operator's panel shall be provided to activate the lights.

17-32-2200

PUMP COMPARTMENT LIGHTS (LED)

Two (2) clear LED lights shall be provided inside the pump compartment area. Each shall be switched.

17-32-2500

STEP LIGHTS FRONT BODY

Two (2) clear LED step lights with noncorrosive rubber shock mountings shall be furnished, one each side at the front face of the body, near the running board surfaces. The lights shall be activated with a switch located in the cab.

17-32-3000

RUNNING BOARDS

Running boards shall be installed on each side of the pump compartment module. The running boards shall be constructed of 1/8" embossed bright aluminum tread plate. Each shall be a minimum of approximately 11" deep x the length of the module. The running boards shall have a 1.25" upward bend on the inside edge to act as a kick plate. The aluminum tread plate shall meet recommendations for slip resistant surfaces at the time of proposal.

The running boards shall be attached to a frame mounted outrigger support structure. Each running board to have a 3" downward bend on the front and side faces with a 1" underside return for superior strength.

09-01-4999

TREADPLATE FRONT OF MODULE

The front of the module shall be covered with a sheet of aluminum treadplate.

10-00-0500

PUMP & CAFS PLUMBING SCHEMATIC ON PANEL

A pump and CAFS plumbing schematic shall be provided on the pump operator's panel. The text shall be in Chinese.

10-43-1000

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SINGLE STAGE FIRE PUMP (CAFS)

The pump shall be a Darley LSMC single stage pump, rated at 1000 GPM.

A split shaft driven centrifugal pump rated up to 1000 GPM @ 150 PSI, shall be provided. The pump shall be placed in gear from the chassis cab. The pump shift shall be clearly labeled.

The pump shall have a nickel alloy casing. A bronze, double hubbed impeller, mechanically and hydraulically balanced, shall be installed on a splined stainless steel shaft.

The impeller shaft shall be supported by oil lubricated ball bearings. The pump gear case shall be silent running, with helically cut gears, fully supported by ball bearings, and shall have a replaceable, bronze seal ring.

CAFS COMPATIBLE

The pump transmission shall be designed to accommodate an integrated continuous duty, rotary screw air compressor for CAFS.

10-47-1200

DARLEY MECHANICAL SEAL

The fire pump shall be furnished with a Darley maintenance free mechanical seal; manufactured using the material silicon carbide (no exceptions). The mechanical seal shall be a non-contacting, non-wearing dual seal design. The lip seal shall eliminate leakage on a wet pump while parked on standby. The second seal shall allow a drip rate for cooling and lubrication while pumping.

10-90-2500

PUMP CERTIFICATION

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

11-00-2000

PUMP SHIFT

One (1) air powered pump shift shall be installed in the cab. The shift shall engage the fire pump. The apparatus pump shift shall be engaged only when apparatus is in a stationary position and the parking brake is engaged. The following indicator lights shall be included with pump shift.

A green indicator light labeled "**PUMP ENGAGED**" shall indicate pump shift has successfully been completed.

A green indicator light labeled "**OK TO PUMP**", shall indicate the chassis transmission is in pump gear and parking brake is engaged.

10-44-3000

PUMP ANODES

The pump shall be supplied with two (2) anodes for corrosion protection. The anodes shall be mounted at a 3/4" tap location on the pump manifolds. One (1) anode shall be mounted on the suction side of the pump and one (1) anode on the discharge side of the pump.

10-48-5700

TRANSMISSION LOCK-UP DEVICE

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The automatic chassis transmission shall be delivered to the body builder with high gear lock up device installed on the automatic transmission, to allow proper gear ratio for pump operation. The transmission shall be programmed by the chassis manufacturer to include this feature.

10-49-0100

DRIVELINE MODIFICATION

The chassis driveline shall be modified to accommodate any changes required by the installation of the fire pump.

11-01-2010

ELECTRIC PRIMER

The fire pump priming system shall consist of one (1) 12 volt positive displacement type rotary vane primer. The primer shall be approved per NFPA 1901 recommendations. The primer shall include a lubrication fluid reservoir. The priming pump shall be constructed of heat treated aluminum and hard coat anodized.

A single, push-pull control shall be located on the pump operator's panel with a "Pull to Prime - Push To Close" label.

17-64-5200

PRESSURE GOVERNOR

A Darley "**AUTO CONTROL**" electronic pressure governor and engine monitoring system shall be installed on the pump operators control panel. The governor shall be configured to operate with the chassis engine.

It shall regulate engine RPM to maintain a consistent pressure out of the water pump over a wide range of outgoing flows.

The unit shall include the following features:

DISPLAY:

--A 4-digit LED readout for pump discharge pressure.

--A 4-digit LED readout for pump intake pressure.

--A 20 segment LED bar graph for the pressure or RPM setting.

--A 4-digit readout for engine RPMs.

--Three (3), 10 segment bar graphs for battery voltage, engine oil pressure, and engine temperature. The bar graph display shall flash if low voltage, low oil pressure, or high engine temperature condition occurs.

--"Throttle Ready" green LED. It shall indicate that the pump is engaged in the proper stationary pumping position, and that the parking brake is set.

FUNCTION SWITCHES:

Idle Mode - Preset - Increase - Decrease - Silence.

This system shall utilize information from the chassis engine ECU.

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An audible alarm buzzer shall be included.

NOTE: The governor shall read in Metric.

17-71-1100

4" MASTER PRESSURE GAUGE

A 4" liquid filled master pressure gauge with stainless steel bezel shall be provided. The gauge shall be located on the pump operator's panel.

4" MASTER INTAKE GAUGE

A 4" liquid filled master intake gauge with stainless steel bezel shall be provided. The gauge shall be located on the pump operator's panel.

NOTE: It is desired that the 4" master gauges **read in metric or dual scales.**

11-02-4000

INTAKE RELIEF VALVE(S)

One (1) bronze, Elkhart intake relief valve(s) shall be provided and mounted on the suction side of the pump, adjustable from 50-250 psi, on the valve itself. Each valve specified shall be factory preset at approximately 125 psi. The system does not include an on/off control.

11-04-1000

HEAT EXCHANGER & HEATED PUMP CORE

An automatic heat exchanger system shall be provided in the pump. Antifreeze from the vehicle engine shall flow through the pump core jacket. Water flow from the fire pump shall be used to cool the engine antifreeze. This feature shall assist against the pump freezing in cold climates.

11-11-1000

MASTER DRAIN

One (1) rotary style master drain shall be installed on the lower portion of the side control panel. It shall be of brass construction and use a rotary screw mechanism against a rubber sealing surface. Each port shall be isolated. An "open and closed" label with arrows indicating direction shall be installed.

11-11-5000

1/4 TURN DRAINS

Each gated 1.5" or larger inlet and discharge shall have a quarter turn drain valve installed. The drain valves shall be located along the bottom on each pump panel. Inlets & discharges shall be plumbed to each drain at the lowest point. Each drain shall be plumbed with low pressure hose to drain below the module and be directed away from the pump operator. Each drain valve shall have a T-handle control with a recess in the "T" for a color coded function label.

12-01-4000

SUCTION INLETS

12-03-8000

6" LEFT SIDE INLET

One (1) 6" suction steamer inlet with male NH threads shall be provided, on the left side pump panel. The inlet shall have a removable screen.

12-04-2000

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INLET CAP

The inlet shall have a polished chrome cap, engraved with the pump manufacturer's logo and name. The logo and name shall be painted with a high quality urethane paint.

12-03-8600

6" RIGHT SIDE INLET

One (1) 6" suction steamer inlet with male NH threads shall be provided, on the right side pump panel. The inlet shall have a removable screen.

12-04-2000

INLET CAP

The inlet shall have a polished chrome cap, engraved with the pump manufacturer's logo and name. The logo and name shall be painted with a high quality urethane paint.

17-35-1000

PUMP PANEL ID PLATE

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

11-10-2000

PLUMBING SYSTEM (STAINLESS/BRASS)

All auxiliary suction and discharge plumbing related fittings, waterways, and manifolds shall be fabricated with stainless steel pipe, brass or high pressure hose with stainless steel couplings. Galvanized components and/or iron pipe components are not acceptable.

Upon completion, the entire system shall be fully pressure tested.

The plumbing and valve arrangement shall be capable of delivering water to the pump at a minimum flow rate of 500 GPM while pumping at 150 psi pressure.

Each gated intake shall be equipped with a 3/4 inch bleeder valve located in close proximity to the intake. All intakes shall be provided with suitable closures (valves or caps) capable of withstanding 500 PSI.

When any 3" or larger intake or discharge is gated (except tank to pump valve), the valve shall have a mechanism to allow the valve to fully open or fully close no faster than 3 seconds.

Any 2.5" or larger discharge outlet, mounted 42" or higher from ground, which hose is to be connected, and which is not in a hose storage area, shall be supplied with a sweep elbow of at least 30 degrees.

All 1.5" and larger intakes and discharges shall be equipped with drains. All drain valves shall be operational without the operator having to get under the plumbing area. All drains shall be detailed elsewhere in these specifications.

All discharges and intakes shall terminate with chrome NST adapters, with chrome caps and chains, unless detailed otherwise in these specifications.

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12-07-1000

2-1/2" SUCTION - LEFT SIDE (Darley)

One (1) 2-1/2" brass suction valve shall be installed on the left pump panel with the valve body mounted behind the pump panel. The control handle shall be the quarter turn ball type, of the fixed pivot design, and located along side the suction valve.

The suction shall terminate with a 2-1/2" female NST chrome inlet swivel, and a brass inlet strainer.

The valve shall be Darley brand with a polished stainless steel ball.

NOTE: A chain longer than standard shall be supplied.

NOTE: No Storz. No Plug.

12-15-7000

LEFT SIDE TANK FILL (MANUAL)

One (1) 2-1/2" direct tank fill shall be provided at the LEFT side pump panel, with a strainer, and NST threads. The valve control shall be vertically mounted alongside the valve body. A polished stainless steel trim ring shall be installed around the inlet opening. The tank fill shall include a check valve to prevent water discharge from the tank.

NOTE: A chain longer than standard shall be supplied.

NOTE: No Storz. No Plug.

12-18-0500

TANK TO PUMP LINE (MANUAL)

One (1) 3" tank to pump line shall be provided for connection between the water tank and the fire pump. The valve shall be a 3" bronze, quarter turn ball type. The line shall terminate 4", for water tanks 500 gallons and more; and shall terminate 3", for water tanks under 500 gallons. The valve shall be manually controlled from the pump operator's panel.

12-19-2000

TANK TO PUMP CHECK VALVE

The Darley fire pump suction inlet manifold shall be provided with an integral tank to pump check valve. The check valve shall be designed to automatically open when drafting from an onboard water tank, and close if the pump suction receives water pressure from an outside source.

13-01-2000

2" TANK FILL

One (1) 2" pump to tank fill shall be provided with a 2" inline bronze valve. The valve shall be manually controlled and properly labeled at the pump operator's panel.

14-03-2500

AUTOCAFS - COMPRESSED AIR FOAM SYSTEM

There shall be provided, a high energy, automatic compressed air foam system (AutoCAFS). The system shall be designed to meet all applicable NFPA requirements. It shall be sized to provide at least 240 gallons per minute water flow and 120 cubic feet per minute air flow at 125 PSI.

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The air compressor shall be a high quality, industrial rated, modulating, continuous duty, rotary screw design. The air compressor shall be mechanically gear driven by the main pump split shaft transfer case and shall be so designed as to provide optimum performance at 70% of rated engine RPM.

The air compressor gear train shall provide a means to engage and disengage air compressor as required.

The air compressor system shall include a pressurized oil lubrication system, oil separator, oil filter, inlet air filter, and modulating inlet air control. The air compressor shall be provided with an (Auto/Manual) air pressure control valve located behind an access panel to permit either automatic balancing of air to water pressure for CAFS use or, if desired, manual air pressure adjustment for operating air tools even while at idle. The air compressor system shall also have mounted on the panel a compressor engaged light, oil temperature gauge, and a high oil temperature warning light/buzzer.

Pressure gauges shall be provided to monitor CAFS system total air and water discharge conditions. Gauges and controls shall be positioned and clearly marked so as to provide simple and easy operation.

Each of the components of this Automatic Compressed Air Foam System - (air compressor, drive system, foam proportioner, control and instrumentation system) shall be sized, driven and controlled to produce a well operating and reliable CAFS unit.

This automatic compressed air foam system (AutoCAFS) shall be completely installed and tested before delivery by the factory.

FOAM OUTLETS

The compressed air foam system shall be plumbed to provide both foam solution and compressed air to the specified discharges. Detailed descriptions of these discharges shall be provided elsewhere in these specifications.

11-00-5000

CAFS AIR COMPRESSOR SHIFT

An air powered (CAFS) air compressor shift shall be installed to engage the air compressor complete with a single green colored "ENGAGED" indicator light. The air compressor shift shall include an interlock system, installed to eliminate the possibility of improperly shifting the compressor while the water pump is rotating. The compressor can be engaged only when the water pump is disengaged and the apparatus is in a stationary position. NO EXCEPTIONS

14-10-3500

CAFS AIR PRESSURE GAUGE

The compressed air foam system shall utilize an air pressure gauge. It shall be installed on the operator control panel. This CAFS gauge shall be installed by the CAFS pumping system manufacturer.

NOTE: The gauge shall read in METRIC.

14-10-5000

The compressed air foam system shall utilize an air pressure control system. The system includes a 1/4 turn auto/manual selector valve and an adjustable pressure regulator. It allows the pump operator to choose between automatic air pressure balancing of air and water pressure or manual regulating of the air compressor pressure. It shall be remote mounted inside the pump compartment on the passenger's side for initial calibration of the system.

14-12-1000

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AIR OUTLET 1/4" CAFS SUPPLY

There shall be a brass 1/4" female air hose quick disconnect fitting mounted on the right side pump panel. The fitting shall be connected to the CAFS air compressor. There shall be an adjustable regulator installed to provide compressed air to the side panel. A male quick disconnect fitting shall also be supplied.

14-14-1000

CAFS OPERATORS INSTRUCTIONS

One (1) CAFS (compressed air foam system) instruction DVD(s) shall be provided upon delivery. The DVD(s) shall be a guide for operation and maintenance of the CAFS, and shall be prepared and supplied by the CAFS system manufacturer.

14-20-2000

FOAM PROPORTIONER (2001 System)

A FoamPro 2001 Class A automatic, electronic, direct injection, foam proportioning system shall be installed on the discharge side of the pump. It shall provide foam to predetermined foam discharge(s). This foam system is completely automatic and requires only one push button to turn it on before the system is functioning.

The system shall incorporate a paddle wheel flow meter to measure the water flow, and based on the foam percentage selected at the controller the direct injection pump shall inject the proper amount of foam into the foam discharge(s).

The system is capable of providing precise foam solution concentration rates from 0.1% to 3%, and is operator adjustable with the push button digital display control.

System Capacity - Foam Pump is capable of 2.5 gpm of foam output @ 150 psi. Pump motor is 1/2 HP 12 volt.

The system shall include an "auto on" feature.

Foam Concentration.....Water Flow Range

0.1%.....	20-2600 gpm
0.2%.....	20-1300 gpm
0.3%.....	20-833 gpm
0.5%.....	20-520 gpm
1.0%.....	20-260 gpm
3.0%.....	20-85 gpm

A check valve shall be installed between the flowmeter and the injection fitting to avoid foam contamination back into the rest of the pump.

System Features: Four (4) selectable modes for operator information:

1) Flow mode: Displays the total amount of water being flowed out of the foam discharge(s). Foam system need not be enabled to function in this mode.

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2) Total Water mode: When selected shows the total amount of water flowed out of the foam discharge(s) since the unit was in operation.

3) Foam Percentage % mode: When selected shows the percentage rate that foam is being injected at if the system was turned on. This percentage can be changed by pressing the up or down arrow buttons at the bottom of the display.

4) Total Foam mode: When selected shows the total amount of foam that has been injected since the unit was turned on.

System shall be provided with a low foam tank level switch which shall alert operator of low foam concentrate level and shall automatically shut unit off after two minutes.

Foam system flushing is achieved by simply turning off the unit and flowing water out of the discharge(s) that were previously flowing foam solution.

System shall be completely installed inside pump compartment, with digital control unit and instruction plate mounted on the pump operators control panel. An installation and operation manual shall be included with the system. The system shall be installed by a certified FoamPro dealer only, and shall be fully calibrated and tested for proper operation prior to delivery.

15-20-0400

2.5" LEFT SIDE DISCHARGES (Darley)

Two (2) 2.5" discharge outlets with 2.5" pipe and valve with NST threads shall be supplied at the left side panel. Each valve shall be a quarter turn ball type, self-locking, fixed pivot design and shall be operated with a lever control from the pump operator's panel.

Each valve shall be Darley bronze valve with a high polished stainless steel ball.

15-50-6150

Each valve shall have a chrome 30 degree elbow, with a chrome cap and a stainless steel retaining chain. Each cap shall be a vented rocker lug chrome plated brass cap, as per NFPA.

NOTE: There are to be two (2) left side 2.5" discharge elbows provided, but no adapters, or caps required.

NOTE: Chains longer than standard shall be supplied.

17-42-3300

PRESSURE GAUGES

Two (2) 2.5" liquid filled gauges, each with a stainless steel bezel shall be provided, one for each discharge. The gauges shall be located on the pump operator's panel near the respective discharge control.

15-30-0300

2.5" RIGHT SIDE DISCHARGE (Darley)

One (1) 2.5" discharge outlet with 2.5" pipe and valve and NST threads shall be supplied at the right side panel. The valve shall be a quarter turn ball type, self-locking, fixed pivot design and shall be operated with a lever control from the operator's panel.

The valve shall be Darley bronze valve with a high polished stainless steel ball.

15-50-6100

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The valve shall have a chrome 30 degree elbow, with a chrome cap and a stainless steel retaining chain. The cap shall be a vented rocker lug chrome plated brass cap, as per NFPA.

17-42-3200

PRESSURE GAUGE(S)

One (1) 2.5" liquid filled gauge(s) with a stainless steel bezel shall be provided for the discharge(s). The gauge(s) shall be located on the pump operator's panel near the discharge control(s).

15-30-0410

2-1/2" RIGHT SIDE DISCHARGE (Darley) CAFS)

One (1) 2-1/2" discharge outlet with 2-1/2" pipe and valve with chrome NST threads shall be supplied at the right side panel. The valve shall be a quarter turn ball type, self locking, fixed pivot design and shall be operated with a lever control from the pump operator's panel.

The valve shall be Darley bronze valve with a high polished stainless steel ball.

CAFS FOR RIGHT SIDE DISCHARGE

The discharge shall be piped, including required check valves and 1/4 turn air flow injection valve, to provide water, foam, or compressed air foam.

15-50-6100

The valve shall have a chrome 30 degree elbow, with a chrome cap and a stainless steel retaining chain. The cap shall be a vented rocker lug chrome plated brass cap, as per NFPA.

NOTE: There is to be provided one (1) right side 2.5" discharge elbow, but no adapter, or cap is required.

NOTE: A chain longer than standard shall be supplied.

15-54-1100

DECK GUN DISCHARGE

One (1) 3" deck pipe assembly with a 3" bronze slow close valve shall be provided above the pump as a discharge for a deck gun. The piping shall terminate with NPT threads.

A manually operated control handle shall be located on the pump operator's control panel.

15-58-1100

DECK PIPE FLANGE

One (1) deck gun pipe outlet flange shall be installed on the deck gun piping. It shall be a four bolt flange installed for mounting a deck gun.

15-54-4100

2.5" CAFS DECK GUN DISCHARGE

One (1) 2.5" CAFS discharge with 2.5" pipe, valve and mixer plumbing shall be installed to the deck gun discharge outlet detailed elsewhere in these specifications. The CAFS discharge shall be connected to the deck gun piping above the 3" deck gun valve. The discharge shall be piped, including required check valves and 1/4 turn air flow injection valve, to provide water, foam, or compressed air foam. The CAFS discharge control shall be located on the operators control panel.

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15-68-2500

TWO CROSSLAYS (CAFS)

Two (2) 1.75" crosslays shall be installed above the pump. Each crosslay shall have capacity for 200 ft. of 1.75" double jacket fire hose. The crosslays shall each have 2" plumbing and 2" self-locking valve and terminate with a 2" NPT x 1.5" NST chicksan type swivel up through the center of the crosslay flooring. The swivels shall allow hose out either side of the crosslay.

The outside edges of each side opening shall be trimmed with polished stainless steel. A manual control shall be furnished at the pump operator's panel for each.

CAFS

Each crosslay shall be piped, including required check valves and 1/4 turn air flow injection valve, to provide water, foam, or compressed air foam.

15-69-3000

ALUMINUM CROSSLAY COVER

There shall be an aluminum cover for the crosslay(s). The cover shall be constructed of a minimum of 1/8" aluminum tread plate and be hinged with a stainless steel knuckle hinge. The cover shall be hinged to open toward the chassis cab. The cover shall have a hold down system that shall hold the cover down. A rubber type bumper shall be used to protect the cab paint from the cover.

17-34-1200

DUNNAGE AREA

A recessed, removable dunnage (storage) compartment shall be provided above the pump compartment and shall be full width of the pump compartment. The compartment shall be smooth aluminum material and shall be one piece. It shall be removable if needed.

DOORS

The dunnage area shall have a vertically hinged door with latch on each side.

17-41-7010

WATER LEVEL GAUGE

One (1) Fire Research "**Tank Vision**" water tank level gauge shall be installed on the pump operator's panel. The gauge shall have an LED display, which flashes when the tank level reaches 25% of capacity. A built in calibration system shall allow a bottom tank mounted transducer to be mounted with any tank configuration.

17-41-7200

FOAM LEVEL GAUGE

One (1) Fire Research "**Tank Vision**" foam tank level gauge shall be installed on the pump operator's panel. The gauge shall have a LED display which flashes when the tank level reaches 25% of capacity. A built in calibration system shall allow the two transducers to be mounted with any tank configuration.

19-00-5100

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WATER TANK, FIRE BODY & RELATED COMPONENTS

BODY CONSTRUCTION

The body and water tank shall be fabricated using special high strength copolymer materials; providing a durable, impact resistant, corrosion resistant, and lightweight design.

19-01-0425

BODY/TANK CONSTRUCTION

The body and water tank shall be fabricated using the same special high strength copolymer materials; providing a durable, impact resistant, corrosion resistant, and lightweight design. Due to the added strength and durability provided with this integral design, there shall be NO EXCEPTION to this requirement.

31-03-0100

COPOLYMER BODY CONSTRUCTION

The body shall be fabricated using special high strength, copolymer sheet materials, providing a durable, impact resistant, corrosion resistant, and lightweight body. The body shall be fabricated using Aristech TI-4007-L polymer (or equal) extruded sheets. All seams shall be fully welded. All outside corners on the body shall have a minimum 1/2" radius. The entire body shall be a welded assembly; assembled and painted prior to mounting on the sub frame and the chassis.

Due to the importance of the strength and impact resistance of the copolymer material, there shall be no exception to these requirements.

Only builders who can show examples of previously constructed copolymer bodies shall be accepted.

31-19-1500

REAR TOW EYES

Two (2) heavy duty laser cut steel tow eyes, 3/4" thick with a 3" I.D. cutout, shall each be bolted to the rear chassis frame rails with 3/4" grade 8 bolts. The tow eyes shall extend through the rear panel (or into the back wall of the rear compartment, if present).

The tow eyes shall be painted black unless specified otherwise.

31-24-3050

COMPARTMENT CONSTRUCTION

The compartments, including the floors, shall be constructed of the same heavy duty smooth copolymer material as used for the body. All seams shall be completely welded. Divider walls between compartments shall be single wall construction with a minimum wall thickness of 3/8". Compartment floors shall be a minimum of 1-1/8" thick and shall have a minimum of a 3/4" lip above bottom of the door opening, providing a sweep out design. All compartment door opening lips shall be protected with polished stainless steel trim. For adequate ventilation and air displacement, each compartment shall be properly louvered with square black heavy plastic vents. The forward wall of the front compartments, and rearmost wall of the rear compartments, shall have removable panels, constructed from the same body material, to cover and protect all 12 volt electrical accessories mounted on the walls. The panels shall be removable to provide access to those components. Compartment interiors shall be provided in a natural unpainted finish.

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31-30-1000

FENDER PANELS

Side fender panels above the rear wheels shall be heavy duty smooth copolymer material. Each shall be painted the same color as the exterior body.

FENDER LINERS

Copolymer fender liners shall be welded into the wheel well area, above the rear wheels. Adequate clearance shall be provided for the installation of single tire chains. The inner liners shall be textured black copolymer material.

31-40-0068

HOSE BED (NONE)

There shall no bed present on this apparatus.

NOTE: The top of the "bed area" shall be covered with bright aluminum treadplate.

31-50-0100

FASTENERS

All fasteners used to mount or secure components to the body shall be of stainless steel construction. Items fastened directly into the copolymer shall use sheet metal screws, stainless steel T-nuts or threaded brass inserts, depending on application. Upon request by the department, the manufacturer shall be required to provide a sample of the fasteners to be used in the body construction.

31-51-0575

TREADPLATE AND TRIM

All treadplate shall be bright aluminum. Any horizontal surfaces with aluminum treadplate shall be overlaid with embossed 1/8" bright aluminum treadplate. The aluminum treadplate shall meet recommended requirements for non-slip surfaces.

31-70-1100

RUB RAILS

Rub rails shall be installed using solid black rubber material designed to help protect the lower body and cushion against accidental contact. Each shall be mounted below the lower side compartments. Each end shall have a hard black rubber end cap.

There shall be bright polished scuff strips mounted between the body surface and the rub rails.

31-80-0050

NO LEFT FRONT BODY STEPS

There are no access steps provided on the left front body face of this apparatus.

31-80-2050

NO RIGHT FRONT BODY STEPS

There are no access steps provided on the right front body face of this apparatus.

31-80-4100

REAR FOLDING STEPS

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Six (6) large, heavy duty chrome folding steps shall be furnished and located, three each side, at the apparatus rear. There shall be a barrier material installed between the body surface and the steps.

31-92-1000

REAR VERTICAL HANDRAILS

Two (2) vertically mounted handrails, approximately 30" long, shall be provided, one each side at the apparatus rear. Each shall be 1-1/4" extruded aluminum tubing with rubber grip inserts, mounted in chrome stanchions. There shall be a barrier material installed between the body surface and the handrails.

20-07-6200

1000 GALLON TANK - COPOLYMER

Booster tank shall be constructed of a copolymer material, properly baffled.

The tank shall be provided with at least one (1) full length swash partition (baffle) and a sufficient number of width wise baffles so that the maximum dimension of any spaces in the tank, either transverse or longitudinal, shall not exceed 46", and not less than 23".

Baffles shall have openings at both the top and bottom to permit movement of air and water between spaces to allow maximum flow requirements. Baffles shall form an integral part of the tank, and design shall be to provide and maintain safe road stability regardless of water level.

Tank shall have an overflow designed to prevent damage to the tank under high flow conditions and enclosed in front tank filler. The overflow is to be designed and located to prevent water loss on fast stops or starts, and is also to be located not to affect traction on the rear tires.

Tank outlet connection shall be designed with a 12" anti-swirl baffle plate above tank outlet to prevent air from mixing with the water when pumping from the tank.

A fill tower shall be installed in the tank top. It shall be of adequate size, minimum 10" X 10", to accommodate overflow and vents, to have a hinged cover and screen installed.

The tank shall be mounted to the chassis frame, per manufacturer's requirements.

20-30-9501

TANK OVERFLOW

The fill tower shall have a 4" overflow that shall discharge beneath the tank, behind the rear wheels.

21-10-2000

FOAM TANK

One (1) 50 gallon foam tank shall be provided, integral with the water tank and shall have a rectangular fill tower, approximately 10" x 10", with a hinged cover and a removable screen. A tank drain shall be provided inside the pump compartment.

31-12-0375

SUBFRAME

The body shall be attached to and supported by a heavy duty, spring loaded, steel subframe bolted to the truck frame. The subframe shall be spring mounted to the chassis frame to allow for independent flexing of the body in relation to the chassis frame. The subframe shall be constructed from structural steel angle

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and C-channels. No welding shall be allowed to the truck frame. Isolator strips shall be installed at all contact points between body and subframe.

The subframe shall be carbon steel, sandblasted, then receive a powder coat epoxy primer, and a powder coat black finish.

Due to the importance of the subframe flexibility and corrosion resistance, there shall be no exception to these requirements.

31-31-1000

FENDERETTES

Bright anodized aluminum fenderettes shall be bolted to the wheel well openings.

31-61-2200

REAR TAILBOARD

The rear tailboard shall be bolted to a heavy duty steel support assembly attached to the chassis frame.

The rear tailboard shall NOT extend beyond the rear face of the side body compartments.

It shall be constructed of embossed fire apparatus quality bright aluminum treadplate.

33-01-1140

COPOLYMER COMPARTMENTS

LEFT SIDE

- 1.) One (1) compartment ahead of the left side rear wheels, approximately 28" wide x 68" high x 23" deep. The door opening shall be approximately 26" wide x 66" high.
- 2.) One (1) compartment over the left side rear wheels, approximately 59" wide x 48" high x 23" deep. The door opening shall be approximately 54" wide x 37" high.
- 3.) One (1) compartment behind the left side rear wheels, approximately 29" wide x 68" high x 23" deep. The door opening shall be approximately 27" wide x 66" high.

RIGHT SIDE

- 4.) One (1) compartment ahead of the left side rear wheels, approximately 28" wide x 68" high x 23" deep. The door opening shall be approximately 26" wide x 66" high.
- 5.) One (1) compartment over the left side rear wheels, approximately 59" wide x 48" high x 23" deep. The door opening shall be approximately 54" wide x 37" high.
- 6.) One (1) compartment behind the left side rear wheels, approximately 29" wide x 68" high x 23" deep. The door opening shall be approximately 27" wide x 66" high.

33-07-0140

REAR COMPARTMENT

- 7.) One (1) compartment at the apparatus rear, approximately 48" wide x 50" high x 24" deep. The door opening shall be approximately 42" wide x 46" high.

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35-17-0202 The compartment shall have a roll up door.

REAR ROLL UP DOOR FINISH

35-90-5110 The rear roll up door shall be in a natural aluminum brushed finish.

REAR DOOR LOCK

35-02-1050 One (1) key lock assembly shall be provided for the rear compartment. The lock shall be integral with the door latch assembly, with keys included.

ROLL UP DOORS

35-90-1170 The side compartment door openings shall be fitted with roll-up style doors.

ROLL UP DOOR CONSTRUCTION

There shall be ROM Series IV roll-up shutter doors installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum. Shutter slats shall feature a double wall extrusion 0.315" thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it shall be a double "V" seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece "D" shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125". Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which shall allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counter balance system. Counter balance system shall be 4" in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counter balance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system; no foam material of any kind shall be permitted or used in this area.

A magnetic door ajar switch shall be provided and installed within the shutter door strike block. Strike block shall be mounted to the door track outside of the compartment. Door switch shall be controlled by a magnetic end cap installed into the shutter lift bar. Door switch shall provide a ground signal to a relay or multiplexing device to control compartment lighting and/or warn operator door is open.

The shutter door assembly shall be manufactured and assembled in the United States (No Exceptions).

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35-17-0102

SIDE ROLL UP DOOR FINISH

The side roll up doors shall be in a natural aluminum brushed finish.

35-90-5160

SIDE COMPARTMENT DOOR LOCKS

Six (6) side compartments shall have key lock assemblies. Each lock shall be integral with the door latch assembly, with keys included. All keys shall fit each lock.

A key lock assembly shall be provided for the following compartment doors:

---Each of the side body compartments.

37-20-0570

HARD SUCTION TROUGHS

Four (4) unpainted aluminum suction troughs shall be provided above the body side compartments. There shall be two heavy duty Velcro straps installed to hold hose in a secure position.

---Two (2) on the left side body

---Two (2) on the right side body

37-50-2400

WHEEL WELL SCBA COMPARTMENTS

Four (4) wheel well air bottle compartments shall be provided and located at the rear wheel wells, two each side. Each compartment shall be a tube shaped design, fabricated from the same material as the body, and shall be properly supported to prevent cracking or breaking.

The front opening shall be seam welded to the wheel well. Each compartment shall have a drain to dispel moisture. Compartments of metal material shall be lined with black rubber to protect the finish of the air bottles.

Each compartment door shall be unpainted cast aluminum with latch.

38-00-0200

SHELVING TRACKS

Unistrut type tracks shall be provided in five (5) body compartment(s). The tracks shall be mounted vertically from floor to ceiling. A minimum of four (4) tracks shall be provided for each compartment specified.

The following compartments shall have unistrut track installed:

---Each of the side body compartments and the rear compartment, EXCEPT left side compartment #2 above the rear wheels, and right side compartment #5 above the rear wheels.

40-00-0000

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PAINT, STRIPING, AND LETTERING SECTION

40-10-1950

PAINT FINISH

The apparatus shall be finish painted with DuPont/Axalta system paint. The compartment doors, if painted, shall be painted separately to ensure proper paint coverage on the body edges. The apparatus shall be prepared and painted using the following procedures.

All surfaces to be painted shall be properly prepared and cleaned. Painting, including primers and final coatings to be applied per the paint manufacturer's recommendations and instructions.

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

A pint of touch up paint shall be provided for each color used.

40-12-0950

PAINT COLOR

The apparatus body paint shall be "cross referenced" from the chassis paint, and shall be painted to match the main chassis color as close as possible.

40-13-4000

WHEEL RIMS

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

40-20-2000

LETTERING

Up to sixty (60) 3" gold vinyl letters with outline shall be supplied and installed on the apparatus.

NOTE: The lettering layout shall be provided at order entry.

40-25-0200

REFLECTIVE STRIPE

Reflective striping shall be applied to the side of the vehicle chassis and body on at least 50% of the overall length of the vehicle. At least 50% of the rear and 25% of the front of the vehicle width shall have reflective striping applied. Striping shall be 3M CONTROLTAC reflective striping (or equal).

40-25-1000

The stripe shall be a **4"** wide reflective stripe

40-25-2000

The reflective stripe color shall be **WHITE**.

40-25-4000

STRIPE DESIGN

The reflective stripe shall be applied in a straight line along each side of the cab; then angle upward on the forward body doors, then straight back on the remainder of the body.

40-26-4100

CAB DOOR REFLECTIVE MATERIAL

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40-26-4300 There shall be reflective material installed on the inside outer edges of the cab doors.

40-27-8100 The color of the reflective material shall be **WHITE**.

REAR CHEVRON STRIPING

There shall be alternating reflective striping provided at the apparatus rear, in a chevron stripe pattern. At least 50% of the apparatus rear shall have the retroreflective chevron striping.

40-27-8212 The chevron pattern shall slant downward on both sides of the vehicle at an angle of 45 degrees, pointing in the direction of the bottom rear corners of the apparatus. The pattern shall resemble an inverted "V", with the point of the chevron pattern at the top center of the apparatus.

CHEVRON STRIPE WIDTH (6")

40-27-8310 The chevron stripes shall each be 6" wide.

CHEVRON COLORS

50-00-0000 The chevron pattern shall be alternating RED and YELLOW stripes.

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50-00-0700 12 VOLT ELECTRICAL SECTION

12 VOLT ELECTRICAL SYSTEM (Multiplexing)

MULTIPLEXING

A multiplexed wiring system shall be installed, controlling all electrical functions installed by the apparatus manufacturer. The system shall be driven by "nodes" in key locations around the vehicle.

ELECTRICAL LOAD MANAGEMENT

Electrical Load management shall also be part of this multiplex system, allowing diminished and load shedding capabilities of particular functions.

GENERAL WIRING

Apparatus body wiring shall be high temperature compatible wire, insulated with chemically cross-linked polyethylene. The wiring shall be resistant to grease, oil, fluids, and abrasion.

All insulated wire and cable shall conform to SAE J1127, Low Voltage Battery Cable, or SAE J1128, Low Voltage Primary Cable, type SXL, GXL, or TXL. Recommended temperature range for SXL, GXL, or TXL Wire is -60°F (-51°C) to +257°F (+125°C).

It shall be stranded copper alloy conductors of a gauge rated to carry 125% of the maximum current for which the circuit is protected. Wiring not within the multiplexed system shall be individually color coded and function labeled every three (3) inches on the insulation.

All required testing shall be performed before the apparatus is delivered. All required test documents shall be supplied at the time of apparatus delivery.

All wiring for the apparatus shall be installed in accordance with quality electrical standards, protected in loom or conduit. Grommets shall be installed where wire passes through body panels, where applicable.

WIRING DIAGRAMS

Electrical wiring diagrams of the specific apparatus shall be furnished with the completed apparatus.

50-00-2300

12 VOLT SWITCHES (CENTER CONSOLE)

There shall be a rocker switch panel provided in the cab console between the driver and officer seats.

This switch panel shall control warning lights and 12 volt accessories. The switches shall be rocker style switches. Each switch shall have a pilot light indicating the "on" position. There shall be a main master rocker switch to cut power to all warning light rocker switches. The master switch shall be red in color with a red pilot light. Each switch shall be labeled as to its function.

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50-01-0100

RUNNING LIGHTS & REFLECTORS

There shall be running lights and reflectors mounted on the body. Lights shall be recessed in the body or rubrails. They shall be along any running boards, body sides, and rear tailboard. The lights and reflectors shall meet USA Federal Motor Vehicle Safety Standard # 108.

50-01-0700

TURN SIGNAL LIGHTS

Two (2) Whelen 500 series red LED turn signal lights shall be installed on the apparatus above the rear wheel well area, one each side. The lights shall be wired into the chassis left turn and right turn signal light system.

50-01-0800

LICENSE PLATE HOLDER & LED LIGHT

A license plate holder with LED light shall be provided on the rear of the apparatus body. The light shall be wired to illuminate with the parking/headlights.

50-02-2100

REAR DIRECTIONALS (LED)

Rear directional lighting shall be supplied as follows:

Two (2) Whelen 6" x 4" LED stop and tail lights, one each side - Red.

Two (2) Whelen 6" x 4" LED turn signals, one each side - Amber.

Two (2) Whelen 6" x 4" LED back up lights, one each side - Clear.

50-02-5200

HOUSINGS FOR DIRECTIONALS

The Whelen signal lights shall each be housed in an aluminum bezel designed to hold four (4) lights each. The fourth light location shall be utilized for lower rear warning lights.

50-05-4050

COMPARTMENT LIGHTING (LED)

Each body compartment shall contain one (1) LED clear vertical strip light assembly, as provided by ROM. The compartments over the body wheel and the rear compartment shall have two strip lights, one on each side of the door.

Each light strip provided shall be full height of the compartment. Strip lighting provides uniform light dispersion throughout the compartment even when shelves are installed. The compartment strip lighting shall be automatically activated whenever a compartment door is opened.

50-05-5100

Each roll up door shall have an integral "door open" indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

50-05-5550

"DO NOT MOVE APPARATUS" LIGHT (LED)

A flashing red LED light, properly labeled with the words "Warning - Do Not Move Apparatus When Light Is On", shall be located in the cab. The light shall be activated automatically when any cab or body compartment door is opened, as long as the chassis is not in the park position.

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In addition, accessories such a telescoping light shall also be connected to this ajar circuit, to activate the light when any of these items are not properly nested, and the vehicle is not in park.

51-00-1100

WARNING LIGHT SYSTEM

The following warning lights shall be installed in zones and properly switched.

54-00-5225

WHELEN WARNING LIGHT SYSTEM (LED)

54-12-1350

LIGHT BAR

Zone A - (Upper Front) - One (1) Whelen Freedom IV™ Linear Super-LED® LC Series 60" lightbar model #F4X0RRRR shall be provided and installed. The F4X0RRRR LED lightbar shall incorporate an anodized extruded heavy duty aluminum base with two front and rear red corner modules, and four interior red modules.

The front and rear of each corner module shall consist of 12 red Linear Super-LEDs installed on a conformal coated PCB board with a thermal pad/aluminum bracket heat sink assembly. The long red interior Linear Super-LED lights shall incorporate 12 red Super-LED installed on a conformal coated PCB board with a thermal pad/aluminum bracket heat sink assembly.

The long interior Linear Super-LED lights shall incorporate 12 Super-LEDs installed on a conformal coated PCB board with a thermal pad/aluminum bracket heat sink assembly. The all modules will utilize a Diamond Optix™ metalized reflector and two optic collimators. All electronic components shall be conformal coated to provide additional protection. The outer lens construction shall consist of two clear Uni-Dome top lenses with a clear center lens and utilize two liquid injection molded wiper seal dividers for maximum protection against environmental elements. Metal top shields installed on the Uni-Domes and center lens shall provide protection from climatic conditions and provides passive solar radiation to direct heat away from internal components.

The lightbar shall have an electronic LC I/O board. The solid state I/O board shall be microprocessor controlled. The I/O board shall have built-in reverse polarity protection and output-short protection. The I/O board shall have the ability to flash twenty two Super-LED warning lights. There shall be a data bank of 12 Scan-Lock™ flash patterns including steady burn with low power and cruise light functions. The cruise light function shall allow the user the four corner modules as marker courtesy lights.

All lighthoods shall be installed with the aid of black polycarbonate snap-in mounting brackets. The solid state lightbar shall be vibration resistant. The lightbar shall contain a 17' 2/c 8GA unterminated power cable and 17' 17/c 22GA unterminated control cable. All electronic components are covered by a five year factory warranty. The lightbar shall include a permanent mount kit with hardware.

Voltage: +12v

Size: (excluding mount kit) H=3.71", W=59.90", D=12.41"

Amp Draw: 2.40 Amps Corner Modules; 0.84 Amps Short Warning Modules; 1.24 Amps Long Warning Modules

Lens Color: RED

54-20-1000

Light bar shall be mounted on the centered forward section of the cab roof.

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54-21-1200

The light colors shall be as follows:

Driver's Side of Lightbar

- All red LED corners (front & rear) and front facing

Passenger Side of Lightbar

- All red LED corners (front & rear) and front facing

54-30-4075

Zone A (Lower Front) - Two (2) Whelen 400 series LED warning lights shall be mounted, one each side, on the front face of the cab or cab grille.

54-32-1000

The light color shall be as follows:

Driver's Side - **RED**, Officer's Side - **RED**

54-40-3120

Zone B (Right Side) - One (1) Whelen 400 series LED warning light, shall be mounted on the side of the chassis hood as far forward as feasible. One (1) Whelen L31 series Super-LED® model #L31H*F series beacons shall be provided. This LED beacon shall be mounted on the upper front corner of the body.

Zone D (Left Side) - One (1) Whelen 400 series LED warning light, shall be mounted on the side of the chassis hood as far forward as feasible. One (1) Whelen L31 series Super-LED® model #L31H*F series beacons shall be provided. This LED beacon shall be mounted on the upper front corner of the body.

These above lights shall be activated with the Side Warning switch mounted in the chassis cab.

54-42-1000

The light colors shall be as follows:

Driver's Side - **Red**

Officer's Side - **Red**

54-60-0550

Zone C (Rear-Upper) - Two (2) Whelen L31 series Super-LED® model #L31H*F series beacons shall be provided. Each high profile 12 volt beacon shall incorporate 32 Super-LEDs installed in sets of eight on four PC boards. The four PC boards shall be installed on a LED ballast. The L31H*F series shall have an optic hard coated polycarbonate lens, and a metalized reflector with clear optic collimators. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The four conformal coated PC boards shall provide additional protection against environmental elements. The L31H*F series shall include Phase 1 / Phase 2 Signal Alert™ 75 and Phase 1 / Phase 2 Single Flash 75 with synchronized features. The L31H*F series shall also contain cruise mode and low power mode. The dome lens shall be sealed to a black powder coated die cast aluminum base with an "O" ring gasket assembly. The solid state beacon light shall be vibration resistant. An installation kit including mounting hardware shall be provided for surface mounting. Each light shall contain a 12" non-terminated pigtail.

Voltage: +12 volt

Size: Height=4.00", Diameter=7.20"

Amp Draw: 4.0 Amps Peak/ 1.60 Amps Average

54-62-1057

The light colors shall be as follows:

Driver's Side - **Red**.

Officer's Side - **Red**.

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54-70-0425

Zone C (Rear-Lower) - Two (2) 600 series LED FOG LIGHTS shall be mounted, one each side, at the lower rear of the apparatus (in the four light bezels).

NOTE: These lights shall be switched with the front cab fog lights.

54-72-1000

The light colors shall be as follows:

Driver's Side - **Red.**

Officer's Side - **Red.**

58-00-0610

SIREN AMPLIFIER

One (1) Whelen Siren Amplifier model #295SLSA1 shall be provided. The siren amplifier shall incorporate a 12V/200W siren installed on an aluminum alloy chassis covered by a black polycarbonate powder coated housing for maximum protection. The 295SLSA1 shall have the ability for either 100 or 200 watt output. The front overlay shall be made of velvet Lexan™ with a matte finish. The lettering and artwork on the overlay shall be illuminated with adjustable backlighting of soft LED non-glaring green. The operating controls will consist of a power switch, manual button, PA volume switch, horn button, and rotary switch. The 295SLSA1 PC board shall have input polarity protection, output short circuit protection. The siren amplifier shall include a 20A/32V fuse. The solid state siren speaker amplifier shall be vibration resistant. The microphone shall be hardwired to the 295SLSA1.

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

Voltage: +12v

Size: H=2.50", W=5.92", D=5.50"

Amp Draw: 16 Amps



58-09-1400

The electronic siren control shall be recessed in center console between driver and officer seats.

58-10-1600

SIREN SPEAKER

One (1) siren speaker, with a 100 watt driver shall be provided and installed at the front bumper.

58-10-9100

The siren speaker(s) shall be recessed in the center front bumper.

59-10-0006

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12 VOLT TELESCOPING LIGHTING

59-10-3500

TELESCOPIC LIGHT(S) - 12 VOLT LED EVOLUTION BOTTOM RAISE

Two (2) Fire Research Evolution II LED model FCA530-V20 side mount push up telescopic light(s) shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 3.5" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

The lamp head shall have eight (8) ultra-bright white LEDs. It shall operate at 12/24 volts DC, draw 13/6.5 amps, and generate 20,000 lumens. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall incorporate heat-dissipating fins and be no more than 5 3/16" deep by 3 5/16" high by 11 1/2" wide. The lamp head and mounting arm shall be powder coated white. The flood light shall be for fire service use.

65-90-0400

LIGHT LOCATION

The light(s) shall be mounted on the front face of the body.

65-92-2600

LIGHT SWITCHING

Two (2) remote 12 volt weather resistant switch(es) shall be provided and installed at the pump operator's panel and inside the cab for the specified light(s). Each switch shall be properly labeled to indicate the light it controls.

70-00-0050

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EQUIPMENT SECTION

EQUIPMENT

The following equipment (if listed below) shall be supplied with the apparatus. It shall be shipped loose unless detailed below or otherwise in these specifications.

70-00-0055

One (1) bag of fasteners, typically included on trucks of this design, containing a variety of fasteners used in the construction of this vehicle, shall be supplied with this completed apparatus.

70-00-1900

Four (4) section(s) of 7 ft. x 6" clear Kochek or equal suction hose, with pyrolite, NST 6" couplings shall be provided.

77-22-9900

Two (2) bottles of touch up paint as used on the exterior body shall be provided.

77-25-1100

Four (4) Darley AS070 Walkaway SCBA brackets shall be provided and shipped loose.

81-10-4009

SPARE PARTS (NONE): There are NO spare parts specified for this apparatus.

99-99-1000

PURCHASER RESPONSIBILITY

It shall be the responsibility of the Purchaser to furnish any recommended or required items not detailed in these specifications.