

1500 GPM Vision Top Commercial Pumper  
 VS005 Commercial Pumper  
 WS Darley

102014	DESCRIPTION	QTY
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	The completed apparatus shall be ready for delivery within approximately _____ calendar days, following the signing of a contract by the purchaser, and the counter-signing of the same contract by Darley.	
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	NOTE: Warranty details available.	
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	NOTE: Warranty details available.	
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-- - Darley Supplied Chassis	1
-- Chassis Handling	1
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IH 4400 4-Door 4x2 (14 & 23) SCBA	1
---CHASSIS MODIFICATION SECTION---	1
Chassis Modifications	1
Tire Pressure Monitoring Systems	1
-- Tire Pressure Monitoring System	1
Helmet Holders	1
-- Helmet Holder(s)	5
NOTE: Darley shall determine the best locations for the holders, unless dictated otherwise by the customer.	
No Map Compartment Required	1
Control Console Between Seats	1
No Map Light Required	1
Battery Switch Provided With Chassis	1
Battery Charging Receptacle - 12V (No Internal Charger)	1
Clear Cover for Transmission Shift	1
Mud Flaps (Front) (2)	1
Mud Flaps w/Logo (Rear) (2)	1
Exhaust Right Rear Wheels (Heat Shield)	1
"General" Back Up Alarm	1
Identification Data Plate - Drivers Compartment	1
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Travel Height & GVWR Label	1
---PUMP, MODULE, AND RELATED ITEMS---	1
---Top Control Module---	1
-- NFPA 1901 Compliant Pump	1
-- Pump Operation - Top Panel	1
-- Pump Module - Top Panel - Alum Tubing	1
-- Walkway For Top Control Module	1
-- Top Operated Pump Panel - Wrap Around	1
-- Top Panel - Black Vinyl	1
-- Color Coded Pump Labels	1
-- Side Pump Panels - Black Vinyl	1
-- Vinyl Access - Top Mount Sides - Vertical Hinge (Both)	1
-- Light Shield - Top Panel (LED Strip Lighting)	1
-- Light Shields Both Sides Pump Panel (LED)	1
-- Pump Compartment Lights (2)	1

-- Step Lights At Walkway (One Each Side On Module)	1
-- Running Boards - Treadplate - Top Panel	1
-- No Grip Inserts Or Side Hose Wells	1
-- Under Walkway Tool Compartments	1
LDMBC Top Control Package	1
-- Pump System - LDMBC 1500 Single Stage	1
-- Mechanical Seal - Darley	1
-- U.L. Certification 1500 GPM	1
-- Pump Shift - Dash Mounted Air Switch	1
-- Anodes For Pump (2)	1
-- Pump System Lock-Up On Chassis Transmission	1
-- Driveline Modification - Pump Installation	1
-- Paint For Pump - Standard	1
-- Pump Operation DVD	1
-- LDMBC Air Comp Shift - Panel (See AutoCommander)	1
-- Primer - Fluidless - (1) Electric	1
-- Primer "ON" Light	1
-- Pump Discharge Relief - Pressure Governor	1
-- Pressure Governor - Darley AutoControl	1
-- Master Pressure Gauge - With Pressure Governor	1
-- Master Suction Gauge - With Pressure Governor	1
-- Engine Gauges & Alarms - With Pressure Governor	1
-- Relief Valve - Elkhart Intake	1
-- Heat Exchanger & Heated Pump Core System	1
-- Master Drain - Isolated Rotary Type	1
-- Individual 1/4 Turn Drains	1
-- Suction Inlet - Left Side - 6"	1
-- Suction Inlet Cap (With Logo)	1
-- Suction Inlet - Right Side - 6"	1
-- Suction Inlet Cap (With Logo)	1
-- Pump ID Plate On Panel	1
-- Warning - Pump Operator	1
Plumbing System - Stainless/Brass	1
Suction(s) - 2-1/2" Left - Darley (Side Control)	1
Tank To Pump 3" (Electric over Air)	1
Integral Check Valve	1
Tank Fill - 2" (Manual)	1
AutoCAFS II - 220 CFM - Complete Kit (Top)	1
-- Proposal - CAFS In Service Requirements	1
-- CAFS Test/Demo/Manual Requirements	1
-- FoamPro 2001 (For Single Tank) (CAFS)	1
-- Discharges- Two (2) 2-1/2" Left Side - Darley	1
-- Discharge Elbows - Chrome (2)	1
-- Gauge - 2-1/2" Dia. Press -30 to +600 (2)	1
-- Discharge - One (1) 2-1/2" Right Side - Darley	1
-- Discharge Elbow - Chrome (1)	1
-- Gauge - 2-1/2" Dia. Press -30 to +600	1

-- Discharge - One (1) 3" Right Side (Top Lever Control)	1
-- Adapter - 3" NST x 5" Storz	1
-- Gauge - 2-1/2" Dia. Press -30 to +600	1
-- 3" Deck Gun Plumbing & 2-1/2" CAFS Bypass	1
-- Discharge - 3" Deck Gun Plumbing (Manual)	1
-- Mounting Flange - 4 Bolt	1
-- Gauge - 2-1/2" Dia. Press -30 to +600	1
-- CAFS T'd to Deck Gun Piping (Electric)	1
-- Speedlays - Two (2) 1-3/4" On Walkway (2") (CAFS)	1
-- FRC Jack Strap (2)	1
-- Gauge - 2-1/2" Dia. Press -30 to +600 (2)	1
-- Speedlay Cover - Aluminum	1
Water Level Gauge - FRC Tank Vision - Operator Panel	1
Foam Level Gauge (None Required)	1
---BODY---	
Pumper Body Construction (General)	1
-- Integral Construction	1
Body Construction (Detailed)	1
-- Rear Tow Eyes - Below Tailboard (2)	1
-- Body - Compt Construction	1
-- Body - Fenders and Liners	1
-- Hose Bed Required	1
-- Hose Bed Interior w/Black Overlays	1
-- Hose Bed Capacity	1
-- Bed Floor (Blk CoPoly)	1
-- Hose Bed Divider(s) - Adj. Poly	1
-- FRC Jack Strap (Each)	2
-- No Hose Bed Cover (Dealer Or Customer Provided)	1
-- Body - Fasteners	1
-- Body - Treadplate & Trim	1
-- Rubrail - Black Rubber	1
-- NO Left Front Body Steps Required	1
-- NO Right Side Front Steps Required	1
-- Folding Steps At Rear (6) (Three Each Side)	1
-- Rear Vertical Hand Rails (2)	1
-- Rear Crossrail - Horizontal (1)	1
-- 1000 Gallon Tank - Poly	1
-- Tank Overflow - 4"	1
-- Foam Tank - 25 Gallon Integral Poly (1)	1
-- Body - Subframe	1
-- Body - Fenderettes - Anodized Aluminum	1
-- Tailboard (Recessed)	1
-- Left Compt	1
-- Hi Side Compt Doors - Roll-Up	1
-- Right Compt	1

-- Hi Side Compt Doors - Roll-Up	1
-- Rear Compt	1
-- Rear Roll Up Door	1
-- Brushed Finish Roll Up Door (Rear)	1
-- Doors	1
-- Robinson Roll-Up Door Construction	1
-- Brushed Finish Roll Up Doors (Side)	1
-- Ladder Compt - Vertical Right	1
-- Ladder Capacity - 24 ft 2-Sec & 14 ft Roof	1
-- Ladder Capacity For One (1) Folding Ladder	1
-- Pike Pole Tubes (2)	1
-- Suction Hose Mount - Left Slide-In - (2) Hoses	1
Wheel Well Air Bottle Compts. (4)	1
NO Shelving Tracks Required	7
NO Adjustable Shelving Required	5
NO Roll Out Or Out & Down Trays	1
 ---PAINT, STRIPING, AND LETTERING---	1
Paint Finish	1
-- Paint Color - Match Chassis	1
-- Wheel Rims - As Provided with Chassis	1
NO Lettering Required	1
Reflective Striping	1
-- 4" Reflective Stripe	1
-- Reflective Stripe Color - WHITE	1
-- Reflective Stripe Design - Straight - NFPA Height	1
Rear Chevron Striping	1
-- Chevron 6" Stripes	1
-- Chevron Colors - (Red & Yellow)	1
 ---12 VOLT ELECTRICAL SECTION---	1
12V & Multiplex System	1
Master & Warning Light Switches - Cab Console	1
D.O.T. Running Lights - LED	1
License Plate Holder & Light	1
Midship Turn Signal - LED Whelen 52	1
Tail & Back Up Lights - Whelen 64 LED	1
-- 3 Light Bezel For Whelen Directionals	1
Step Lights At Rear (One Each Side)	1
Step Lights Front Body (One Each Side)	1
Compt LED "Strip" Lighting (ROM) (Roll Doors)	1
-- Door Open Switch and Warning Light - Roll Up Doors	1
-- "Do Not Move Apparatus" Light in Drivers Compartment	1
Ground Lighting - Four (4) Door Cab	1
Ground Lights - Pumper Module & Tailboard (4)	1
Lights - Unity Deck (2)	1
Warning Lights	1

-- Whelen Warning Light Package (LED)	1
-- Whelen 54" Edge - LFL Liberty - LED	1
-- Whelen - Light Bar - Mounted on Cab Roof	1
-- Whelen - Light Bar Lights - Red/Clear	1
-- Whelen - Lower A - (2) 600 Series LED - Front Cab	1
-- Whelen - Lower Zones A - Color - Red	1
-- Whelen - Lower Zones B & D - 600 Series LED (6)	1
-- Whelen - Lower Zones B & D - Color - Red - (6)	1
-- Whelen - Upper C - (2) LED Beacons	1
-- Whelen - Upper C - Red	1
-- Whelen - Lower Zone C - 600 Series LED (2)	1
-- Whelen - Lower Zones C - Red (2)	1
-- Whelen - Certificate of Certification	1
Whelen Siren #295SLSA1	1
-- Mounting Location - Recessed In Center Console	1
Siren Speaker - Thru Bumper (100W) (Each)	1
-- Siren Speaker - Recessed In Left Side of Bumper	1
NO "Q" Style Siren (None Required)	1
---EQUIPMENT TO BE SUPPLIED---	1
10 ft Duo #585-A Alum Fold Ladder	1
14 ft Duo #775-A Alum Roof Ladder	1
24 ft Duo #900A Alum 2-Section	1
Suction Hose - Clear Kochek - 6" x 10'	2
Wheel Chocks/Folding - Up To 44" Wheel	1
Folding Wheel Chock Bracket - Horiz - 44"	1
Purchaser NFPA Responsibility	1

**VS005 Commercial Pumper**  
WS Darley



**W.S. Darley & Co.**

***FIRE APPARATUS SPECIFICATIONS***

***1500 GPM Vision Top Control CAFS Pumper  
---Commercial Chassis---***

***Darley VS005***

***For***

***Department Name  
City, State***

# VS005 Commercial Pumper

WS Darley

00-00-6000

## **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.

This apparatus shall be constructed in its entirety within the continental United States.

00-00-9500

## **THANK YOU**

Thank you for the opportunity to present these specifications. Our company looks forward to working with you, to provide the best service possible, and the best product possible, as detailed within these specifications.



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WS Darley

00-01-0000

## **FIRE APPARATUS SPECIFICATIONS**

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.
- 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.

00-10-1000

## **NFPA COMPLIANCE**

The apparatus detailed herein shall meet applicable NFPA recommendations current at the time of the proposal.

00-15-0600

## **PAYMENT REQUIREMENTS**

00-16-1500

Payment for the value of the chassis shall be made to Darley upon chassis completion and invoicing by Darley. The balance of the contract shall be paid in full upon completion of the apparatus at the Darley facilities and invoicing by Darley.

00-38-0300

## **DELIVERY REQUIREMENTS**

00-39-4200

## **DELIVERY AFTER CONTRACT**

The completed apparatus shall be ready for delivery within approximately \_\_\_\_\_ calendar days, following the signing of a contract by the purchaser, and the counter-signing of the same contract by Darley.

00-39-2200

## **F.O.B. DARLEY**

The completed apparatus shall be picked up by the customer, at the Darley manufacturing facility in Chippewa Falls, Wisconsin.

00-42-0500

## **PRECONSTRUCTION MEETING**

00-42-0750

There is no preconstruction meeting specified for this apparatus.

00-45-0750

## **INSPECTION TRIPS**

There are no inspection trips specified for this apparatus.

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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**

The Darley apparatus detailed herein shall be warranted against defects in materials and workmanship for a period of twelve (12) months, effective upon pick up or delivery of the apparatus to the destination.

NOTE: Warranty details available.

00-60-4600

## **DARLEY FIRE PUMP WARRANTY**

Upon pick up or delivery of the apparatus, for a period of six (6) years, the Darley Company guarantees to replace any defective part or parts in the Champion pump. This Champion pump is guaranteed to deliver the performance as specified on the certification label.

NOTE: Warranty details available.

00-60-5500

## **LIFETIME TANK WARRANTY**

Pro Poly of America, Inc. (hereinafter "PPA") is committed to assuring Customer satisfaction with PPA Booster, Elliptical and all other Polyprene® water and foam Tanks (hereinafter "Tank"). PPA warrants to the original owner of the apparatus (hereinafter "Purchaser") the Tank to be free from defects in material and workmanship for the normal service life of the apparatus in which the Tank is installed.

NOTE: Warranty details available.

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00-61-7055

## **COPOLYMER BODY WARRANTY**

PolyBilt Body Company, LLC (hereinafter "PB") offers a twenty year warranty on its PB Polymer Body products (hereinafter "Body"). PB warrants to the original owner of the apparatus (hereinafter "Purchaser") the Body to be free from defects in material and workmanship for the following term: PB warrants Body to be free from rust and corrosion for twenty years.

NOTE: Warranty details available.

00-62-2500

## **FIVE YEAR DARLEY COPOLYMER BODY PAINT WARRANTY**

Subject to the provisions, limitations, and conditions set forth in this warranty, the Seller hereby warrants to the original Purchaser, the finish paint on the copolymer body is free of defects and blisters and further warrants that it will maintain such integrity and shall not result in unreasonable gloss or color loss, for a period of five (5) years following the date the apparatus leaves the Seller facility.

NOTE: Warranty details available.

00-65-0600

## **DEMONSTRATION REQUIREMENTS**

00-65-5500

### **DEMONSTRATION AT DARLEY**

While purchaser personnel are present at the Darley manufacturing facility, Darley shall provide a one day demonstration session on the completed apparatus. Demonstration shall be conducted by a minimum of one Darley authorized and trained individual. Demonstration shall include all aspects of apparatus operation.

00-68-0500

## **MANUAL AND DATA REQUIREMENTS**

00-68-4500

### **FIRE APPARATUS DOCUMENTATION**

At the time of delivery, Darley shall supply two (2) copies of the construction details and appropriate manuals.

00-80-0500

## **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 apparatus features and brand names, or model or equipment being supplied with the vehicle.

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05-00-0010  
05-31-5120

## **CHASSIS SPECIFICATIONS**

### **MODEL**

International 4400 4x2  
Four door cab and chassis

NFPA brake stability  
NFPA seat belt system  
NFPA exhaust system  
NFPA data recorder  
Remote - heated mirrors

### **DIMENSIONS**

Wheelbase: 269"  
C/A: 156"  
A/F: 52"  
GAVR front: 14,000 lbs.  
GAWR rear: 23,000 lbs.  
GAWR total: 37,000 lbs.

### **ENGINE**

330 HP @ 2000 RPM  
- Oil check and fill  
- Air intake and cleaner  
- Fan drive  
- Spin on oil filter  
- Coolant filter  
- Radiator

### **TRANSMISSION**

Allison automatic 3000 EVS  
- Five speed fire truck vocation  
- Electronic push button controls

### **AXLES**

14,000 lb. rated front  
- S-Cam brakes  
- Automatic slack adjusters  
- Front oil seals  
- Power steering  
- Shock absorbers

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23,000 lb. rated rear

- S-Cam brakes
- Automatic slack adjusters
- Rear oil seals
- Brake chambers

## **BRAKE SYSTEM**

Air brake package

- ABS system with electronic stability system
- Air dryer with heater
- Drains on all tanks
- Air compressor

## **CHASSIS AND FUEL TANK**

Chassis

- Steel frame with reinforcement liner
- Full width chromed steel bumper
- Front tow hooks

Fuel tank

- 50 gallon steel tank on right side below cab  
(shall not extend beyond rear of cab)
- Fuel/water separator
- Reinforced braided fuel hose

## **TIRES AND WHEELS**

Front tires and wheels

- Aluminum wheels

Rear tires and wheels

- Aluminum wheels

## **CAB**

Exterior

- 80" Steel Cab Construction
- Exterior grab rail by each door with rubber inserts
- Standard hood mounted grille
- Molded fiberglass hood and fenders w/90 deg. Tilt
- Door and ignition keyed alike
- Stainless steel mirrors and convex
- Back wall window
- Tinted door glass and windshield
- 2-1/2 gallon windshield washer reservoir

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## Interior

- Gray vinyl interior
- Vinyl upper door trim
- Two (2) sunvisors
- Heater w/integral defroster
- Air conditioning

## Seating

- High back driver seat
- Non-suspension high back officer seat (SCBA)
- Crew seating (SCBA)
- Embossed gray vinyl seat covering

## GAUGES AND CONTROLS

- Gauge package (speed/tach/oil temp/volt/water temp/  
dual air pressure/fuel/standard warning)
- Air restriction indicator
- Self-canceling turn signals

## ELECTRICAL AND LIGHTING

- 220 amp alternator
- 12 volt batteries
- 12 volt starter
- Single electric horn
- Halogen headlights
- Five marker lamps
- Stop/turn/tail/back up wiring to BOC
- Front turn signals
- Heater/defroster in cab
- Wiring diagram
- Dome light activated by each door
- Electric windshield wipers
- Four way flashers
- Air conditioning

## PAINT

- One color finish paint (IH Red)
- Black frame

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07-00-0000  
07-00-1000

## CHASSIS MODIFICATIONS

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

07-00-1110

## TIRE PRESSURE MONITORING SYSTEM (SINGLE REAR)

There shall be a six (6) wheel stabilizer kit with extensions and LED indicators provided with the apparatus. The tire pressure monitoring system shall indicate if there is improper air pressure in the tire.

The inner tires on the rear dual wheels shall have an extension provided that will pass through the outside rim and attach to the stabilizer providing an unobstructed view for inspection of the inner tire air pressure.

The tire pressure indicators shall be shipped loose and installed by the department. The indicators shall be installed after the unit has been fully equipped. The indicators will calibrate to the initial air pressure setting upon installation and will intermittently flash when the tire pressure is reduced by 10% from its original calibrated pressure.

07-00-3010

## HELMET HOLDER(S)

Five (5) Ziamatic UHH-1 universal helmet holder(s) shall be provided and installed in the cab.

NOTE: The OEM shall determine the best locations for the holders, unless dictated otherwise by 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 console shall be unpainted, "DA" finished, smooth aluminum material with a black vinyl covered aluminum top.

The top shall be hinged toward the rear to allow easy access to components and wiring inside the console. The cover shall be fastened on the sides and front.

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, fire pump shift control, and generator controls (as applicable).

07-30-0500

## MASTER BATTERY SWITCH (Chassis Provided)

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

07-30-4500

## BATTERY CHARGING RECEPTACLE

A 12V receptacle for charging the vehicle batteries from an external battery charger shall be provided and wired to the batteries. A polarized mating plug shall be included.

The receptacle shall be located below the driver door area.

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07-40-0500

**COVER FOR TRANSMISSION SHIFT**

A hinged clear Plexiglas type guard shall be installed over the transmission push button shift pad, to protect the push button controls when not in use, and to prevent accidental activation or shifting.

07-52-1000

**FRONT MUDFLAPS**

Two (2) black hard rubber mudflaps shall be installed behind the front wheels, one each side.

07-52-2000

**REAR MUDFLAPS**

Two (2) black hard rubber mudflaps shall be installed behind the rear wheels, one each side. The apparatus manufacturer's logo shall be on each rear mudflap.

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
- Generator system lubricant

The ID plate shall also include the following:



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

07-95-2000

## **OCCUPANT PLATE**

An identification plate shall be installed in the driver's area of the cab, specifying the quantity of personnel allowed to ride in the apparatus.

07-95-4000

## **TRAVEL HEIGHT AND GVWR LABEL**

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

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

The plate shall also show the gross vehicle weight rating (GVWR) in pounds or kilograms.

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

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09-00-0050

## **PUMP, MODULE, AND RELATED ITEMS**

09-03-1000

### **NFPA 1901 COMPLIANT PUMP**

The fire pump and related plumbing shall be installed in accordance with applicable NFPA 1901 guidelines at the time the contract was placed.

17-00-2000

### **TOP DESIGN PUMP OPERATOR'S PANEL & MODULE**

17-11-1200

#### **TOP PANEL MODULE**

A pump operator's top control 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. A top operator's control surface, the width of the module and at an approximate 30 degree upward slope, shall be provided at the front of the module. The module shall be constructed using aluminum square tubing. The welded ends of the tubing shall be chamfered prior to welding and shall be ground smooth prior to finishing. The exterior module shall be sanded, prepped, and primed using paint manufacturer's recommendations. The module structure shall be finish painted to match the body and chassis cab. A heavy duty 1/4 inch thick rubber isolation material shall be provided between the module frame and the powder coated steel support structure.

#### **FRONT ACCESS**

There shall be a removable aluminum treadplate panel across the front of the module, below the operator's area. The panel shall be held in place along a bottom slotted area and a latches near the top.

17-18-1000

#### **WALKWAY**

An aluminum treadplate walkway shall be provided at the front of the top operator's module and shall be approximately 22" deep. The walkway shall be transverse, with access from either side of shall the apparatus.

Aluminum treadplate steps and spacing shall be compliant with US NFPA recommendations, current at the time of proposal. Treadplate steps shall be provided on either side of the walkway for access to the top of the walkway.

#### **GRAB RAILS**

Two (2) compliant grab rails shall be provided, one each side of the module, for access onto the walkway area.

17-20-4100

#### **TOP OPERATED PUMP PANEL (WRAP AROUND)**

The pump operator's control panel shall be a top console operated panel, with the operator facing the rear of the apparatus when using the controls.

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The operator's control surface shall be ergonomically designed in a curved "wrap around" fashion to allow quick and easy access to vital controls. The ends shall be curved inward, toward the operator. Due to the additional safety and ease of control access, there shall be **no exception** to this requirement.

### PANELS

The operator's control panel shall be recessed. It shall be the width of the pump module and only as deep as the controls and gauges deem necessary.

Side panels shall be provided on each side of the module.

### DRAINS AND TRIM RINGS

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

Drains shall be located each side of the module.

### GAUGES AND CONTROLS

All valve controls shall be in one line and have chrome levers using positive direct linkages to the valves (unless electrically controlled valves are specified or required). All valves shall be self-locking type. The centerline of any control shall not exceed 72" from the base of the operator's standing position.

Discharge gauges shall be located directly above the respective lever control for ease of identification. Gauge height shall not exceed 84" from the base of the operator's standing position.

All gauges shall be functionally grouped to allow easy identification.

17-20-8200

### **TOP OPERATORS PANELS**

The top pump operator's control and gauge panels shall be constructed of removable black vinyl clad aluminum sheet.

17-35-2000

### **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.

17-22-1000

### **SIDE PANELS**

The pump compartment top console module shall have left and right side pump panels installed. The panels shall be constructed of black vinyl clad aluminum sheets. The side pump panels shall be removable.

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WS Darley

17-30-3200

## **ACCESS PANELS - BLACK VINYL**

There shall be hinged upper access panels provided above the main pump panel, one each side of the pump module. Each shall be black vinyl clad aluminum. Each shall be vertically hinged and shall have two latches.

17-32-0500

## **PUMP PANEL LIGHT SHIELD (LED) TOP**

One (1) bright aluminum treadplate light shield assembly shall be provided along the full width of the top mount operator's panel. There shall be a 42" long strip light assembly installed under the shield, containing LED lighting. A separate switch on the operator's panel shall be provided to activate the lights.

17-32-2050

## **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 at the pump operator's shall be provided to activate the lights.

## **PUMP PANEL LIGHT SHIELD (LED) RIGHT**

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

17-32-2200

## **PUMP COMPARTMENT LIGHTS**

Two (2) 5" round dome style lights shall be provided inside the pump compartment area. Each shall be switched on the light itself. The lights shall have a minimum 20 candlepower.

17-32-2350

## **WALKWAY STEP LIGHTS**

Two (2) step lights with noncorrosive rubber shock mounting shall be furnished and shall be located, one each side of the module, at the walkway area, to illuminate respective stepping surfaces.

The lights shall be activated with a switch to be located in the cab.

17-32-3500

## **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 fire apparatus bright aluminum treadplate. Each shall be a minimum of approximately 11" deep x the full width of the top console module. The running boards shall have a 1-1/4" upward bend on the inside edge to act as a kick plate.

The aluminum treadplate shall meet recommendations for slip resistant surfaces.

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

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WS Darley

17-34-4500

## **TOOL COMPARTMENTS**

One (1) tool compartment(s) shall be provided on each side of the area below the walkway. Each compartment shall be furnished with a bright aluminum treadplate door, two (2) push button latches, and a light in each compartment.

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WS Darley

10-41-5515

## **SINGLE STAGE FIRE PUMP (CAFS)**

The pump shall be a Darley LDMBC single stage fire pump, capable of a 1500 gpm rating.

Power to drive the pump shall be provided by the same engine used to propel the apparatus. The pump shall be midship mounted and designed to operate through an integral transmission, including a means for power selectivity to the driving axle or to the fire pump.

The pump casing shall be a fine grain cast iron alloy, vertically split, with a minimum 30,000 PSI tensile strength and bronze fitted.

The pump shall contain a cored heating jacket feature that, if selected, can be connected into the vehicle antifreeze system to protect the pump from freezing in cold climates.

The impeller shall be a high strength bronze alloy of mixed flow design, accurately balanced and splined to the pump shaft for precision fit and durability. The impeller shall feature a double suction inlet design with opposed volute cutwaters to minimize radial thrust.

The seal rings shall be renewable, double labyrinth, wrap around bronze type.

The pump shaft shall be precision ground stainless steel with long wearing titanium hard coating. The shaft shall be splined to receive broached impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by engine.

The bearings provided shall be heavy duty, deep groove, radial type ball bearings. They shall be oversized for extended life. The bearings shall be protected at all openings from road dirt and water splash with oil seals and water slingers.

The transmission case shall be heavy-duty cast iron alloy with adequate oil reserve capacity for low operating temperatures. The transmission case shall contain a magnetic drain plug for draining the gearcase oil and a dipstick for checking and filling the level of the gear case through its opening. The transmission shall also allow the use of an external heat exchanger for increased cooling under extreme conditions.

The pump driveshaft shall be precision ground, heat-treated alloy steel, with a minimum 2-1/2" x 10" splined ends. Gears shall be helical design, and shall be precision cut for quiet operation and extended life. The gears shall be cut from high strength alloy steel, heat-treated and gas nitrided. The gear face shall be 3-1/2" minimum.

The gearshift shall be a heat-treated alloy steel splined spur gear to engage either the pump drive gear or the truck drive shaft gear. The gear ratio of the pump shall be selected by the pump and apparatus manufacturer's Engineering Department.

Due to the advantages of the above gear and drive feature, chain drive and designs requiring additional lubrication are not acceptable.

A discharge manifold, as supplied as part of the pump by the pump manufacturer, shall include a discharge check valve assembly to allow priming of the pump from draft with discharges open and caps off.

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WS Darley

Due to the importance of the above discharge manifold and check valve assembly, intended to be included with the overall pump design, there shall be no exception allowed to this requirement.

Discharge outlets shall have extensions with companion flange openings to allow ease of service. Two ports shall be provided on a pump panel for testing of vacuum and pressure readings. A weather resistant Performance Data Plate shall be installed on a pump panel.

The pump priming system, heat exchanger system, discharge and suction valves, relief valves, pump shift, and master drain shall be as detailed elsewhere in these specifications.

Two (2) manuals covering the fire pump, pump transmission, and selected options of the fire pump shall be provided with the apparatus.

### CAFS COMPATIBLE

The pump transmission shall be designed to accommodate an integrated, air compressor mounting bracket. This bracket shall be installed to properly align a rotary screw air compressor with an external sprocket driven by the pump transmission. The air compressor shall be driven using a Gates "Poly Chain GT" belt drive system. The air compressor drive sprocket shall be supplied with an electric over air, multi plate, industrial clutch designed to be engaged at idle and allow disengagement at any rpm. The clutch shall incorporate an automatic, high CAFS oil temperature shut down to avoid damage to the rotary screw air compressor. An interlock shall be installed to disallow air compressor engagement if engine rpm is higher than recommended.

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.

10-90-1500

### U.L. CERTIFICATION - 1500 GPM

The fire pump shall meet and perform the following tests to receive a U.L. Certification.

- 100% of rated capacity at 150 PSI net pump pressure
- 100% of rated capacity at 165 PSI net pump pressure
- 70% of rated capacity at 200 PSI net pump pressure
- 50% of rated capacity at 250 PSI net pump pressure

11-00-1200

### PUMP SHIFT

One (1) air powered pump shift shall be installed in the cab. The shift shall engage the fire pump. The 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.

# VS005 Commercial Pumper

WS Darley

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**

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.

11-00-0000

## **PUMP OPERATION DVD(s)**

One (1) DVD(s) explaining proper fire pump operating procedures and maintenance for the fire pump shall be included upon delivery. The DVD(s) shall be produced and provided by the same company that manufactures the fire apparatus.

11-00-5250

## **AIR COMPRESSOR SHIFT (CAFS)**

A CAFS air compressor shift shall be provided on the pump operator's panel to engage the CAFS air compressor (see Darley AutoCommander in the CAFS section of these specifications).

11-01-2000

## **ELECTRIC PRIMER (FLUIDLESS)**

One (1) 12V positive displacement type rotary vane primer of a fluidless design shall be provided for the fire pump priming system

A single, push-pull control shall be located on the pump operator's panel with a "Pull to Prime - Push To Close" label. The primer shall not require a lubrication tank. The priming pump shall be constructed of heat treated aluminum and hard coat anodized.

11-01-2800

The pump priming system shall include a light to indicate when the pump priming system has been activated. The light shall be red in color and shall be labeled "WARNING - Primer Engaged".

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.



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## WS Darley

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 operate in both RPM and PSI modes. The 6-1/2" x 7-1/2" control 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.

An audible alarm buzzer shall be included.

11-02-4000

### **INTAKE RELIEF VALVE**

One (1) bronze, Elkhart intake relief valve shall be provided and mounted on the suction side of the pump, adjustable from 50-250 psi, on the valve itself. The valve 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.

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WS Darley

11-11-5000

**1/4 TURN DRAINS**

Each gated 1-1/2" 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.

12-01-6000

**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

**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.

17-35-1200

**WARNING - PUMP OPERATOR**

A warning plate shall be installed on the pump operator's panel that states the following:

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

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.

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WS Darley

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 2-1/2" 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 1-1/2" and larger intakes and discharges shall be equipped with drains. All drain valves shall be operational without the operator having to get under the apparatus. 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.

12-07-1000

## **2-1/2" SUCTION(S) - LEFT SIDE (Darley)**

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

The suction(s) shall terminate with a 2-1/2" female NST chrome inlet swivel, a chrome male plug, chain, and a brass inlet strainer.

12-18-0600

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

## **TANK TO PUMP LINE (ELECTRIC)**

One (1) 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 valve shall be controlled from the pump operator panel using an open/closed, two position toggle switch with a red indicator light for the closed position, and a green indicator light for open.

The toggle switch shall activate an electric over air solenoid, which actuates an air cylinder changing the position of the valve. The piping shall consist of a 3" stainless steel sweep elbow from the pump to the valve and a 4" stainless steel sweep elbow from the valve to the water tank.

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.

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WS Darley

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.

14-02-1150

## 220 CFM COMPRESSED AIR FOAM SYSTEM

The apparatus shall be equipped with the latest, high energy, automatic, compressed air foam system (AutoCAFS II).

Ratings: The fire pump and air compressor shall be sized to provide at least 220 CFM (cubic feet per minute) of compressed air while simultaneously flowing at least 440 GPM (gallons per minute) of water flow. The pressure of the system shall be set at 125 PSI for the duration of this test.

This rating is as outlined with the NFPA recommendation that the water pump shall discharge two gallons of water for every one CFM of compressed air discharge. Fire pumps with UL ratings in excess of 1000 GPM commonly flow near capacity while simultaneously operating the air compressor at full output.

Components: The air compressor shall be a high quality, industrial rated, modulating, continuous duty, and of rotary screw design. The air compressor shall be mechanically driven by the main pump and shall be so designed as to provide optimum performance at 70% of rated engine RPM. Air compressor drive train shall provide a means to engage and disengage the air compressor as required.

The air compressor system shall include a pressurized oil lubrication system, oil reservoir with receiver/separators elements, oil filter, inlet air filter, and modulating air inlet control. The air compressor shall be provided with a pressure control system to automatically balance air pressure to water pressure. The air compressor air inlet valve shall open and close to provide the air flow desired while maintaining the air system pressure to water pump pressure to within 5 PSI differential. This balancing system is essential for safe operation of a compressed air foam system.

The air compressor lubrication system shall require cooling water to be supplied from the fire pump through a heat exchanger to cool the air compressor oil. The essential water flow to this oil cooler shall be supplied using a self-cleaning, flushed strainer system to ensure a consistent flow of cooling water. The oil temperature shall be thermostatically controlled to remain at a consistent operating temperature within the range from 170° F to 190° F.

## AUTO CAFS COMMANDER

Panel Mounted Controls: The air compressor system shall have mounted on the operators control panel an "AutoCAFS Commander" electronic control used to engage and disengage the AutoCAFS air compressor. It includes an On/Off button with engagement light as well as the following features.

### Additional Features

- Digital Air Pressure Gauge
- Mode button to switch between RPM readout, Hourmeter, and optional Air flow meter.
- Digital Air Compressor Oil Temperature Reading
- Programmable Engagement Speed Protection
- Automatic Blow Down Pressure Protection

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- Programmable OverSpeed Warning with light and flashing message in Info Center
- Programmable High Speed Automatic Disengagement System
- Programmable Over Heat Warning
- Programmable High Temperature Automatic Disengagement System

-Optional "AutoOn" setting. Allows automatic engagement of the AutoCAFS air compressor any time the pump is placed into gear and operated. This feature can be used to eliminate two (2) steps when operating a CAFS when used in conjunction with the FoamPro "AutoOn" feature in the foam proportioner.

## **CAFS AIR INJECTION - AUTOMATIC**

The AutoCAFS II shall utilize automatic air flow switch controls to inject the proper volume of compressed air into the foam discharges. A panel mounted toggle switch control shall automatically regulate the precise amount of compressed air independently into each compressed air foam system discharge of 2" plumbing or less. The air flow amount shall be factory preset to the proper levels. Each foam discharge shall include a manually adjustable valve mounted inside the pump compartment for fine tuning when desired.

The automatic control shall consist of a weatherproof toggle switch which electrically activates an air flow valve sized according to the SCFM requirement of the discharge. Each automatic air flow injection switch, mounted on the panel, shall be installed using a red protective switch cover. Each CAFS air injection switch shall be appropriately labeled.

## **AIR OUTLETS 1/4" CAFS SUPPLY**

There shall be brass 1/4" female air hose quick-disconnect fittings mounted on each side pump panel. A bulkhead fitting with a removable coupling shall be mounted to the panel to allow for panel serviceability. The fittings shall be connected to the apparatus CAFS air compressor discharge outlet using 3/8" red flexible hose. There shall be an adjustable regulator installed on the discharge side of the air compressor separator to provide clean oil free compressed air to the side panels. Two (2) male quick disconnect fittings shall also be supplied.

## **STANDARD FOAM SUPPLY VALVE**

The foam system shall be installed with a 3-way foam system supply valve. This 3/4" valve functions as a multipurpose valve control. In the standard position, the valve provides foam supplied from the foam tank to the foam proportioner. In the next position, the valve provides a drain using a short rubber hose connected to this valve. In the final position, the valve provides an "Off" position to allow for cleaning of the inline foam concentrate strainer. In this final position, the drain hose can also be utilized as an overboard secondary foam pickup hose.

This alternate source to the foam proportioner shall be provided near the inlet to the foam pump using a 3/4" three way valve to disconnect foam flow from the tank and allow foam to be drawn from a pail or other source through a 3/4" inside diameter yellow hose approximately four feet long. This hose shall be provided near the pump panel on the side of the truck and is intended to work best with the pail of foam concentrate setting on the running board.

This compressed air foam system shall include an air pressure gauge for use with CAFS.

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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 installed to produce a well operating and reliable CAFS unit.

This (AutoCAFS II) compressed air foam system shall be completely assembled and tested by the fire pump manufacturing facility before delivery. The system shall then be installed by the fire apparatus manufacturer and retested for complete NFPA compliancy.

## 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.

14-14-2500

## CAFS IN SERVICE REQUIREMENTS

The Darley Company is the leader in compressed air foam technology. Darley has CAFS systems throughout the United States and around the globe, operating successfully and effectively.

A listing of CAFS customers' names with addresses, phone numbers, contact persons, and in service dates is available upon request.

14-14-2800

## CAFS TESTING - DEMONSTRATION - MANUALS

Every Darley compressed air foam system is tested prior to delivery. After testing is completed, the foam system is flushed. Demonstration for proper operation and maintenance can be provided for the Purchaser's designated personnel at Darley, or at a mutually agreed upon location. Two (2) manuals for the CAFS pumping system are provided upon delivery.

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.

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## 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.
- 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

### **2-1/2" LEFT SIDE DISCHARGES (Darley)**

Two (2) 2-1/2" discharge outlets with 2-1/2" 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.

15-50-6150

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

Each valve shall have a chrome 30 degree elbow, with a chrome cap and a stainless steel retaining chain.

VS005-0001

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WS Darley

17-42-3300

**PRESSURE GAUGES**

Two (2) 2-1/2" 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

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

One (1) 2-1/2" discharge outlet with 2-1/2" 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

The valve shall have a chrome 30 degree elbow, with a chrome cap and a stainless steel retaining chain.

17-42-3200

**PRESSURE GAUGE**

A 2-1/2" liquid filled gauge with a stainless steel bezel shall be provided for the discharge. The gauge shall be located on the pump operator's panel near the discharge control.

15-30-3025

**3" RIGHT SIDE DISCHARGE**

One (1) 3" discharge outlet with 3" pipe and valve and NST threads shall be supplied at the right side panel. The valve shall be a bronze valve. The valve shall be a quarter turn ball type, self-locking, fixed pivot design and shall be operated with a control from the operator's panel.

15-50-6770

**STORZ ADAPTER**

The discharge shall have a 3" NSTF x 5" Storz 30 degree elbow with cap and retaining cable.

17-42-3200

**PRESSURE GAUGE**

A 2-1/2" liquid filled gauge with a stainless steel bezel shall be provided for the discharge. The gauge shall be located on the pump operator's panel near the discharge control.

15-54-1100

**DECK GUN DISCHARGE**

One (1) 3" deck pipe assembly with a 3" bronze slo-cloz 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.



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WS Darley

17-42-3200

**PRESSURE GAUGE**

A 2-1/2" liquid filled gauge with a stainless steel bezel shall be provided for the discharge. The gauge shall be located on the pump operator's panel near the discharge control.

15-54-4100

**2-1/2" CAFS DECK GUN DISCHARGE**

One (1) electrically controlled 2-1/2" CAFS line with mixer plumbing with mixer and 2-1/2" bronze ball valve shall be installed to supply CAFS to the deck gun discharge outlet detailed elsewhere in these specifications. The CAFS line and electric valve shall be connected to the deck gun piping above the 3" deck gun valve. The CAFS discharge control shall be located on the operators control panel.

15-72-4400

**SPEEDLAY HOSEBED - WALKWAY (CAFS)**

Two (2) speedlays shall be installed on the front portion of the top mount walkway. The speedlays shall be side by side and shall each have capacity for 200 ft. of 1-3/4" double jacket fire hose. The speedlays shall each be piped with 2" pipe and 2" self-locking valve and terminate with a 2" NPT x 1-1/2" NST chicksan type swivel at center of the speedlay. The swivels shall allow hose to play out either side of each speedlay.

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.

Each speedlay shall be piped, including required check valves and air flow injection control, to provide water, foam, or compressed air foam.

15-73-4052

**HOSE STRAPS**

Two (2) Fire Research JackStraps shall be provided; designed to attach hose ends to the apparatus, to help prevent fire hose from inadvertently coming off the apparatus while responding to or returning from an incident.

The JackStraps shall be made of heavy duty 2-inch wide polypropylene webbing. An adjustable hose loop shall fit on supply and working hose from 1-1/2 to 5 inches. A separate shoulder loop shall help the firefighter when pulling a supply line or help support a working hand line. When used on a hydrant line, the shoulder loop shall be capable of firmly holding hose to the hydrant during a hose stretch. There shall be a side pocket on the shoulder loop to hold a hydrant tool.

17-42-3300

**PRESSURE GAUGES**

Two (2) 2-1/2" 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.

15-73-3000

**ALUMINUM SPEEDLAY COVER**

There shall be an aluminum cover for the speedlays. The cover shall be 1/8" bright aluminum treadplate and shall be hinged with a stainless steel hinge. The cover shall open and swing up toward the cab. The cover shall latch in the closed position.

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17-41-7010

## **WATER LEVEL GAUGE**

One (1) Fire Research "**TankVision**" 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.

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19-00-3100

## 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.

The width of the apparatus body from the outside face of the left compartments to the outside face of the right compartments shall be 96.00" wide.

19-01-0425

### INTEGRAL BODY/TANK CONSTRUCTION

The water tank shall be integral with the body. 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 subframe 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.

31-19-1000

### REAR TOW EYES

Two (2) heavy duty steel tow eyes, approximately 3/4" thick, shall be provided beneath the rear tailboard. 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.

31-40-0073

**HOSE BED**

There shall be a hose bed furnished on this apparatus.

31-40-1000

**HOSE BED CONSTRUCTION**

The hose bed walls shall be of the same copolymer material as the body, reinforced at the corners. The upper, outer edges shall have a solid tube type design for strength and stiffness. The hose bed shall be free from all projections, which may interfere with the unloading of hose.

The interior surface of the walls in the hose bed area shall be overlaid with textured black copolymer material for ultimate protection.

31-41-1200

**HOSE BED CAPACITY**

The hose bed shall have the recommended minimum cubic foot of usable capacity for a hose load.

31-42-1100

**HOSE BED FLOORING**

A hose bed floor shall be provided and constructed of textured black copolymer material. The slats shall be properly spaced to allow passage of air between the hose and the booster tank.

31-43-1500

**HOSE BED DIVIDER(S)**

One (1) adjustable polymer hose bed divider(s) shall be provided and installed in extruded tracks to allow adjustment from side to side for alternate hose capacities. The divider(s) shall have a textured black finish, and shall have a radius corner on the rear portion.

31-46-6015

**HOSE STRAP(S)**

Two (2) Fire Research JackStrap(s) shall be provided; designed to attach hose ends to the apparatus, to help prevent fire hose from inadvertently coming off the apparatus while responding to or returning from an incident. The JackStrap shall be made of heavy duty 2-inch wide polypropylene webbing. An adjustable hose loop shall fit on supply and working hose from 1-1/2 to 5 inches. A separate shoulder loop shall help the firefighter when pulling a supply line or help support a working hand line. When used on a hydrant line, the shoulder loop shall be capable of firmly holding hose to the hydrant during a hose stretch. There shall be a side pocket on the shoulder loop to hold a hydrant tool.

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31-46-0500

## **HOSE BED COVER (Dealer/Buyer-End User)**

The apparatus Dealer and/or the apparatus Buyer-End User shall be responsible for providing a hinged metal, fastened tarp, or other means; to hold items in any hose bed, as recommended by NFPA, prior to the apparatus being put into service.

There are no requirements in these specifications, for the apparatus manufacturer to provide these items.

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.

31-51-0200

## **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.

The front face of the body sides shall be overlaid with bright aluminum treadplate. The rear of the apparatus inside of the side compartments, and the rear panels below the hose bed shall be covered with bright aluminum treadplate.

31-70-0500

## **RUBRAILS**

Rubrails shall be installed using solid black rubber material designed to help protect the lower body and cushion against accidental contact. Each rubrail shall be mounted below the lower side compartments and at the vehicle rear body, next to the rear tailboard. 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**

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.

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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.

31-92-4200

**HORIZONTAL REAR CROSSRAIL**

One (1) horizontal rear crossrail shall be provided at the upper rear portion of the rear body panel. The rail shall be the approximate width of the rear body, between the width of any side compartments. It 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 handrail.

# VS005 Commercial Pumper

WS Darley

20-10-5200

## **1000 GALLON TANK - POLYMER**

The booster tank shall be constructed of a polymer material and properly baffled.

The tank shall be provided with at least one (1) full length longitudinal baffle and a sufficient number of transverse 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".

The baffles shall have openings at both the top and bottom to permit movement of air and water between spaces to allow maximum flow requirements. The 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 per the 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) 25 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.

31-12-0200

## **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 and C-channels. The subframe shall be completely powder coated prior to installation of the subframe on the chassis. No welding shall be allowed to the truck frame. Rubber isolator strips shall be installed at all contact points between body and subframe.

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

# VS005 Commercial Pumper

WS Darley

31-31-1000

## **FENDERETTES**

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

31-61-3000

## **REAR TAILBOARD**

The rear tailboard shall be bolted to a heavy duty steel support assembly attached to the chassis frame. The rear tailboard shall be a minimum of 10" deep and constructed of embossed fire apparatus quality bright aluminum treadplate with a "DiamondBack" extruded aluminum punched deck plate inset (or equal). The insert and aluminum treadplate shall meet recommended requirements for non-slip surfaces.

The rear tailboard shall be full width between the extended side compartments.

The rear tailboard shall be bolted to the support assembly with a drain gap shall be provided at the rear and each side of the tailboard.

The step height from ground to first step shall not exceed 24".



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WS Darley

33-08-4300

## **COPOLYMER COMPARTMENTS - LEFT**

### **COMPARTMENT #1**

One (1) full height compartment ahead of the rear wheels, approximately 44" wide x 61" high. The lower 27" height shall be 25" deep. The upper 32" shall be 13" deep upper where slide in storage for suction hose protrudes. The remaining forward upper section of the compartment shall be full depth. The door opening shall be approximately 42" wide x 57" high.

### **COMPARTMENT #2**

One (1) compartment above the rear wheels, approximately 63" wide x 32" high x 13" deep. The door opening shall be approximately 58" wide x 28" high.

### **COMPARTMENT #3**

One (1) full height compartment behind the rear wheels, approximately 54" wide x 61" high. The lower 27" shall be 25" deep. The upper 32" shall be 13" deep. The door opening shall be approximately 52" wide x 57" high.

35-09-2000

The side compartment door openings shall be fitted with a roll-up style doors.

33-09-5000

## **COPOLYMER COMPARTMENTS - RIGHT**

### **COMPARTMENT #4**

One (1) full height compartment ahead of the rear wheels, approximately 44" wide x 61" high x 25" deep in the lower section x 13" deep in the upper section. The door opening shall be approximately 42" wide x 57" high.

### **COMPARTMENT #5**

One (1) compartment above the rear wheels, approximately 63" wide x 32" high x 13" deep. The door opening shall be approximately 58" wide x 28" high.

### **COMPARTMENT #6**

One (1) full height compartment behind the rear wheels, approximately 54" wide x 61" high x 25" deep in lower section x 13" deep in the upper section. The door opening shall be approximately 52" wide x 57" high.

35-09-2000

The side compartment door openings shall be fitted with a roll-up style doors.

# VS005 Commercial Pumper

WS Darley

33-10-4300

**COPOLYMER COMPARTMENT - REAR****COMPARTMENT #7**

One (1) compartment at the rear, approximately 44" wide x 61" high x 34" deep. The door opening shall be approximately 38" wide x 55" high. The lower portion of the rear compartment shall be closed into the side compartments.

35-20-3000

**REAR ROLL UP DOOR**

The rear compartment door opening shall be fitted with a roll-up style door.

35-17-0202

**REAR ROLL UP DOOR FINISH**

The rear roll up door shall be in a natural aluminum brushed finish.

35-90-1150

**ROLL UP DOOR CONSTRUCTION**

Robinson brand roll-up style doors shall be provided at the specified door locations.

Each door shall be manufactured in the United States.

The door slats shall be double wall box frame extrusion. The exterior surface of slat shall be flat and interior surface to be concave to prevent loose equipment from jamming the door. Door slats shall be anodized to prevent oxidation. Door slats to have interlocking end shoes on every slat to be secured by a punch dimple process. The door slats shall have interlocking joints with a folding locking flange. A PVC/vinyl inner seal to prevent any metal to metal contact shall be provided between each slat.

Each track shall be one piece construction with attaching flange and finishing flange incorporated into the design. The flange design eliminates any requirement for additional trim or caulk. Each track shall have a replaceable seal to prevent water and dust from entering the compartment.

Each assembly shall include an aluminum drip rail with a replaceable wiper seal.

Each roll-up door shall have a 4" counterbalance spring in the roller assembly to assist in lifting and help prevent the accidental closing.

A full width lift bar shall secure each door.

35-17-0102

**SIDE ROLL UP DOOR FINISH**

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

37-10-1100

**LADDER STORAGE - RIGHT**

A ladder storage compartment shall be provided at the right side of the apparatus between the water tank and the body compartments. It shall be located just below the hose bed level. Access shall be from the rear of the apparatus. Appropriate stops shall be provided at the front of the ladders.

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A vertically hinged aluminum door with push button style latches shall be provided to enclose the ladders at the rear. A switch shall be provided to activate compartment door ajar circuit. A stainless steel scuff plate shall be provided at the bottom edge of door opening.

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

37-10-2300

The ladder storage shall have capacity for one (1) aluminum 24 ft. two-section extension ladder, and one (1) aluminum 14 foot roof ladder.

37-10-2400

Storage shall be provided for one (1) 10 ft. folding attic ladder.

37-10-2600

There shall be two (2) pike pole storage tubes included.

37-20-2010

### **SUCTION HOSE STORAGE LEFT**

A suction hose storage compartment shall be provided at the left side of the apparatus between the water tank and the body compartments. The compartment shall be constructed from the same material as the body. It shall be located just below the hose bed level. Access shall be from the rear of the apparatus.

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

Two (2) "slots" shall be provided in the storage area for the hose to slide on and be held in position when stored. Appropriate stops shall be provided.

A vertically hinged aluminum door with push button style latches shall be provided to enclose the suction hose at the rear. A switch shall be provided to activate the compartment door ajar circuit. A stainless steel scuff plate shall be provided at the bottom edge of door opening.

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.

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38-00-0100

**TRACKS FOR ADJUSTABLE SHELVES (NONE)**

There are no adjustable shelving tracks specified at this time.

38-01-0100

**ADJUSTABLE SHELVES (NONE)**

There are no adjustable shelves specified at this time.

38-23-0050

**ROLL OUT TRAYS (NONE)**

There are no roll out trays specified at this time.

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WS Darley

40-00-0000

## PAINT, STRIPING, AND LETTERING SECTION

40-10-2300

### PAINT FINISH

The apparatus shall be finish painted with DuPont Chroma 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 prepared and cleaned using soap and water. Prep Sol 3919S or Kwik Clean 3949S shall be used to remove any tar, wax, polish and grease.

All surfaces to be painted shall be scuffed using 80-150 grit sandpaper. All surfaces shall receive a final wipe using Lacquer and Enamel cleaner 3939S, followed up with Plastic Prep 2319S.

Two (2) medium wet coats of adhesion promoter for Plastics 2322S shall be applied to all surfaces to be painted.

All surfaces to be painted shall be primed with URO Primer Filler 1140S. The primer mixture shall contain four (4) parts primer, one (1) part Activator 1125S, one and a half (1.5) parts Converter 1130S, and one half (.5) parts Flex Additive 2350S.

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

A final application of sealer shall be applied using URO Primer Filler 1140S. The sealer mixture shall contain four (4) parts primer, one (1) part Activator 1125S, two (2) parts Converter 1130S and one half (.5) Flex Additive 2350S.

The base coat shall be Dupont ChromaBase. The paint shall be applied according to DuPont base coat application instructions. The base coat shall be ChromaBase mixed with 5% Flex Additive 2350S.

The clearcoat shall be DuPont ChromaClear. The clearcoat shall be applied according to DuPont clear coat application instructions. The clear coat shall be ChromaClear Multi Use 7500S and mixed with 5% Flex Additive 2350S.

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.

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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.

40-20-0050

**LETTERING - NONE**

There is no lettering to be supplied on this apparatus.

40-25-0200

**REFLECTIVE STRIPE**

To comply with current NFPA standards, 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

The reflective stripe shall be applied in a straight line along each side of the apparatus. The height of the stripe from the ground to the center of the stripe shall be per NFPA recommendations.

40-27-8100

**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.

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.

40-27-8212

**CHEVRON STRIPE WIDTH (6")**

The chevron stripes shall each be 6" wide.

40-27-8310

**CHEVRON COLORS**

The chevron pattern shall be alternating RED and YELLOW stripes.

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WS Darley

50-00-0000

## 12 VOLT ELECTRICAL SECTION

50-00-0700

### 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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50-01-0200

## **RUNNING LIGHTS & REFLECTORS**

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

50-01-0800

## **LICENSE PLATE HOLDER & LIGHT**

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

50-01-1050

## **MIDSHIP TURN SIGNAL (LED)**

Two (2) Whelen 500 Series amber LED midship turn signals, each with a chrome trim plate, shall be mounted, one each side, at the rear wheel wells.

50-02-2100

## **REAR DIRECTIONALS**

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.

50-02-5000

## **HOUSINGS FOR DIRECTIONALS**

Two (2) sets of Whelen rear signal lights shall each be housed in a model #CAST3 cast aluminum bezel, designed to hold three (3) lights each.

50-03-0200

## **REAR STEP LIGHTS**

Two (2) step lights with non-corrosive rubber shock mounting shall be furnished and shall be located, one each side at the apparatus rear to illuminate respective stepping surfaces.

The lights shall be activated with a switch located in the cab.

50-03-0800

## **FRONT BODY STEP LIGHTS**

Two (2) step lights with non-corrosive rubber shock mounting shall be furnished and located, one each side, at the front face of the apparatus body to illuminate the respective stepping surfaces. The lights shall be activated with a switch located in the cab.

50-05-4100

## **COMPARTMENT LIGHTING (LED)**

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



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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.

50-05-5500

### **"DO NOT MOVE APPARATUS" LIGHT**

A flashing red 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 parking brake is not engaged.

In addition, accessories such as a ladder rack (or similar storage rack), any extendable light or tower, or a telescoping deck gun device shall also be connected to this ajar circuit, to activate the light when any of these items are not properly nested, and the parking brake is not engaged.

50-07-0400

### **FOUR DOOR CAB GROUND LIGHTING**

The four (4) door cab shall have a ground light below each stepping area of each entry door to illuminate the ground at the step area. The lights shall be wired to activate when the apparatus is in the "park" position.

50-07-1000

### **UNDER BODY GROUND LIGHTS**

Four (4) ground lights shall be provided. Each shall have a clear lens and shall be mounted on brackets, angled outward, beneath the apparatus. The lights shall be wired to activate when the apparatus is in the "park" position.

The lights shall be mounted as follows:

- Two (2) at the pump module running boards, one each side.
- Two (2) at the rear tailboard, one each side.

50-09-1000

### **UNITY HOSE BED/DECK LIGHTS**

Two (2) 6" chrome plated Unity hose bed/deck lights shall be installed at the rear of the apparatus. Each light shall be manually operated and switched at the light.

51-00-1000

### **WARNING LIGHT SYSTEM**

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

The upper and lower level zones shall be provided as one certified package by one light manufacturer.

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54-00-3000

## WHELEN PUMPER WARNING LIGHT SYSTEM (LED)

54-12-1400

**Zone A - (Upper Front)** - One (1) 54" Whelen Edge LFL Liberty, all LED light bar system shall be supplied and installed. The light bar shall include the four corner LINEAR 12 LED system and LINEAR 8 LED modules. Each group of four LED light heads are driven by an electric module that provides proper input power and choice of flash patterns. The ScanLock feature allows scanning of ten flash patterns and lock in the desired pattern. Every pair of lights can have its own pattern.

54-20-1000

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

54-21-0200

The light colors shall be as follows:

- Driver's Side of Lightbar - **Red**
- Officer' Side of Lightbar - **Red**
- Center Front Section(s) of Lightbar - **Clear**

54-30-4000

**Zone A (Lower Front)** - Two (2) Whelen 600 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**

54-40-0400

**Zone B (Right Side-Lower)** - Three (3) Whelen 600 series LED warning lights shall be mounted at the lower front side corner, midship area, and rear side corners of the apparatus.

**Zone D (Left Side-Lower)** - Three (3) Whelen 600 series LED warning lights shall be mounted at the lower front side corner, midship area, and rear side corners of the apparatus.

54-42-1000

The light colors shall be as follows:

- Driver's Side - **Red**
- Officer's Side - **Red**

54-60-0565

**Zone C (Rear-Upper)** - Two (2) Whelen LED beacons shall be mounted, one each side, at the upper rear corners of the apparatus.

54-62-1150

The light colors shall be as follows:

- Driver's Side - **Red**
- Officer's Side - **Red**

54-70-0400

**Zone C (Rear-Lower)** - Two (2) 600 series LED warning lights shall be mounted, one each side, at the lower rear of the apparatus.

54-72-1000

The light colors shall be as follows:

- Driver's Side - **Red.**
- Officer's Side - **Red.**

# VS005 Commercial Pumper

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54-98-0000

## **CERTIFICATE**

This warning light system shall be certified by the light manufacturer to meet the requirements of the applicable chapter of the NFPA, current at the time of contract.

58-00-0610

## **SIREN**

One (1) Whelen electronic siren, model # 295SLSA1 shall be furnished and installed. It shall be 100 watts and feature wail, yelp, phaser, air horn and manual wail. The microphone shall have noise canceling circuitry and Public Address override.

58-09-1400

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

58-10-0200

## **SIREN SPEAKER(S)**

One (1) siren speaker(s), with a 100 watt driver shall be provided and installed.

58-10-9000

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

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WS Darley

70-00-0050

## 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.

70-00-1100

One (1) 10 ft. Duo Safety #585-A aluminum folding ladder, with slip resistant end shoes, shall be provided.

70-00-7600

One (1) 14 ft. Duo Safety #775-A aluminum roof ladder, with folding roof hooks and prong feet, shall be provided.

70-01-2200

One (1) 24 ft. Duo Safety #900A two section aluminum extension ladder, with prong feet, shall be provided.

71-06-6000

Two (2) section(s) of 10 ft. x 6" clear Kochek or equal suction hose, with pyrolite, NST 6" couplings shall be provided.

75-01-0500

One (1) pair of Zico folding wheel chocks shall be provided. The chocks shall comply with NFPA 1901, current edition at time of proposal or order, and shall meet the SAE-J348 standard. The chocks shall be approximately 12" tall x 11-1/4" wide x 21" long, and weigh approximately 20 lbs.

75-01-1000

One (1) pair of Zico horizontal mount folding wheel chock brackets shall be installed in front of and behind the driver side rear wheels.

99-99-1000

### PURCHASER RESPONSIBILITY

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