W.S. Darley & Co.

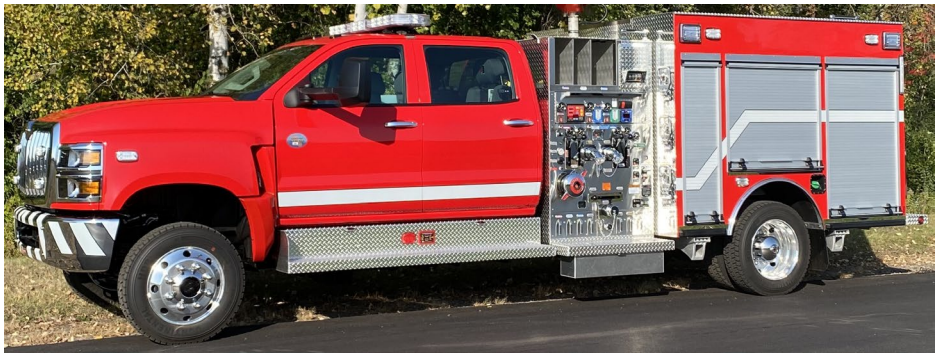
FIRE APPARATUS SPECIFICATIONS

Darley Tactical Pumper™ CV 515 4x4

For a

Well Prepared Fire Dept.

with Darley PSMC fire pump w/AutoCAFS



APPROVED BY (PRINT NAME):_____

SIGNATURE:_____

DATE:_____

Date: August 11, 2025
Sales Rep:

W.S. Darley & Co.

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 US based Fire Departments in general.

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

TACTICAL DIVISION
325 Spring Lake Drive and 920 Kurth Road
Itasca, IL 60143 and Chippewa Falls, WI 54729 USA
1-800-323-0244 www.Darley.com

SOLE SOURCE

The Darley Company's CV515 Tactical Pumper™, as specified for this project, is a sole source product manufactured using the specially geared Darley model PSMC AutoCAFS™ fire pump (Made in Wisconsin) and using the Darley PolyBilt copolymer body (Made in Wisconsin), sold and distributed exclusively by W.S. Darley & Co. here in Wisconsin. No other company makes a comparable product with a 1500 GPM midship fire pump equipped with a Darley AutoCool™ pump transmission and Darley's compressed air foam system that is controlled using the Darley AutoControl pressure governor on the Navistar CV515 4-door, 4x4 chassis.

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.

PRODUCT QUALITY AND WORKMANSHIP

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

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

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

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

SAFETY GUIDE

A copy of the FAMA Fire Apparatus Safety Guide shall be provided. This guide provides safety instructions for operators of fire apparatus.

DOT/NFPA COMPLIANCE

The proposal for fire apparatus conforms with all Federal Department of Transportation (DOT) rules and regulations in effect at the time of bid, and with all National Fire Protection Association (NFPA) guidelines for automotive fire apparatus as published at the time of bid, except as modified by customer specifications. Any increased costs incurred by Seller because of future changes in, or additions to said DOT or NFPA standards will be passed along to the Buyer as an addition to the price set forth above in the contract. The apparatus is designed to meet the applicable and available recommendations of NFPA 1900 which went into effect Jan 1, 2024. This was previously known as NFPA 1901 (Fire Pump/Tank) and NFPA 1906 (Storage, equipment and equipment allowance).

PAYMENT REQUIREMENTS

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.
A down payment of $95,000 for the chassis is expected within 30 days of Darley invoicing the Fire Department once the chassis is received at the Darley factory.

DELIVERY

See the Darley proposal document or the signed Sales Contract document (whichever applies) for the proposed or agreed upon pick up or delivery date.

F.O.B. DARLEY

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

PROGRESS PHOTOS

Progress photos are to be uploaded to a customer accessible SharePoint folder once the project is in production.

INSPECTION TRIP(S)

One inspection trip to Darley is recommended prior to delivery. There are no inspection trips included. No funds are set aside to cover inspection trip costs and are therefore expected to be the responsibility of the buyer.

CONSTRUCTION DRAWINGS

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.

WARRANTY

The following warranties shall be provided:

ONE YEAR DARLEY APPARATUS WARRANTY

The Darley apparatus herein shall include a warranty against defects in materials and workmanship for a period of twelve (12) months, effective upon pick up or delivery of the apparatus to the destination, as found in the available warranty document.

DARLEY FIRE PUMP WARRANTY

Upon pick up or delivery, for a period of ten (10) 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.
This warranty does not obligate the Darley Company to bear costs of labor or transportation of repairs or alterations not previously authorized by same.
The Darley Company shall not be responsible, under the terms of this warranty, for the cost of repairs or alterations of any Champion pump.
The Darley Company makes no warranty of trade accessories incorporated in the assembly or employed in conjunction with any Champion pump. Improper use of the pump or excessive overloading of the pump beyond recommended limits of capacity and pressure shall void this warranty.

LIFETIME TANK WARRANTY

The water and foam tanks herein are warrantied, to the original owner of the apparatus, to be free from defects in material and workmanship for the normal service life of the apparatus in which the tanks are installed, per the available warranty document.

COPOLYMER BODY WARRANTY

The Darley Company provides a limited lifetime warranty on its copolymer PolyBilt bodies, to the original owner of the apparatus, the body to be free from defects in material and workmanship, per the available warranty document.

FIVE YEAR DARLEY COPOLYMER BODY PAINT WARRANTY

Subject to the provisions, limitations, and conditions set forth, Darley 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. Per the available warranty document.

OPERATIONAL - DEMONSTRATION

Darley is pleased to provide full demonstration and familiarization of this product for the customer at the Darley factory. The demonstration shall include all aspects of apparatus operation. The demonstration is anticipated to

take place at final inspection, however training can also be arranged at the customer location at the expense of the customer.

FIRE APPARATUS DOCUMENTATION

At the time of delivery, Darley shall supply the following information:
---The manufacturer's record of construction details (MRCD).
---The operations and service documentation/manuals for the pump and body including electrical.
The above will be provided electronically and a SharePoint link will be given for the customer to access their vehicle manuals from anywhere they have internet access.
---Any printed vendor component part's manuals, such as chassis paperwork, will be shipped in the truck

CHASSIS PROVIDER

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.

MANUFACTURER RIGHTS

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

CHASSIS

CURRENT MODEL YEAR 2024/2025 NAVISTAR CV515 SFA (CV515)
AXLE CONFIG: 4 x 4
APPLICATION: Rescue/Pumper
MISSION: Requested GVWR: 25500. Calc. GVWR: 23000
DIMENSIONS: Wheelbase: 199.00, CA: 83.80, Axle to Frame: 63.00
ENGINE, DIESEL: {International 6.6} 350HP @ 2700 RPM, 700 lb-ft Torque @ 1600 RPM, 2900 RPM Governed Speed, 350 Peak HP (Max)
TRANSMISSION, AUTOMATIC: {Allison 2700 EVS} 6th Generation Controls, Close Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Park Pawl, with 23,500-lb GVW and 26,000 GCW Max, On/Off Highway
AXLE, FRONT DRIVING: {Dana Spicer 60-256} Single Reduction, 7,500-lb Cap, with Hub Piloted Wheel
AXLE, REAR, SINGLE: {Dana Spicer S140} Single Reduct, 15,500-lb Cap, 190 Wheel Ends Ratio: 4.30
CAB: Conventional 4-door, 6-Man Crew Cab, Class 6
TIRE, FRONT: (2) 225/70R19.5 Load Range H HDR5 (CONTINENTAL), 643 rev/mile, 87 MPH, Drive
TIRE, REAR: (4) 225/70R19.5 Load Range H HDR5 (CONTINENTAL), 643 rev/mile, 87 MPH, Drive
WHEELS: Alcoa Aluminum Dura-Bright XBR/EVO
SUSPENSION, REAR, SINGLE: 15,500-lb Capacity, Vari-Rate Springs
PAINT: Cab schematic 100CX Location 1: **RED** (Premium)

TOW HOOK, FRONT (2) Frame Mounted
SKID PLATE Steel, Frame Mounted, Protects the Transfer Case from the Ground
AXLE CONFIGURATION {Navistar} 4x4
FRAME RAILS High Strength Low Alloy Steel (50,000 PSI Yield), Straight top flange w/contoured bottom
BUMPER, FRONT Contoured, Steel, Chrome Plated, for CV
SUSPENSION, FRONT, SPRING Parabolic Taper Leaf, w/shackles, 7,500-lb Cap., w/shock absorbers
STABILIZER BAR, FRONT
BRAKE SYSTEM, HYDRAULIC {Bosch} Split System, with Four Channel ABS, Traction Control, Elec Stability Control, Hydromax Brake Booster with High Speed Master Cylinder and Trailer Sway Control

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AIR DRYER {Wabco System Saver 1200} with Heater
DUST SHIELDS, FRONT BRAKE for Hydraulic Brakes
DUST SHIELDS, REAR BRAKE for Hydraulic Brakes
BRAKE, PARKING {Bosch} DSSA Type, 12" x 3"; for Hydraulic Brakes; Foot Operated; Rear Diff Mtd
AIR COMPRESSOR 7.1 CFM, with Clutch
AIR DRYER LOCATION Mounted Outside Right Rail, Forward of Front Wheel
AIR TANK LOCATION (1) Mounted Outside Left Rail, Perpendicular to Rail, Behind Battery Box
BRAKES, FRONT {Meritor Quadraulic} Hyd Disc Type, with Four 64mm Diameter Pistons, 8,000-lb Cap.
BRAKES, REAR {Meritor Quadraulic} Hyd Disc Type, with Four 64mm Diameter Pistons, 15,500-lb Cap.
STEERING COLUMN Tilting
STEERING WHEEL 4-Spoke; 15" Dia., Black
STEERING GEAR {Bosch S2 8014 Plus} Power
EXHAUST SYSTEM Horizontal, Frame Mounted Right Side, Under Rail, for Single Exhaust
ENGINE EXHAUST BRAKE for International 6.6 Engine
TAIL PIPE (1) Horizontal, Exits Right Side Ahead of Rear Wheel
MANUAL REGEN Capability
ELECTRICAL SYSTEM 12-Volt for CV Model includes:
: HAZARD SWITCH Push On/Push Off, Located on Top of Steering Column Cover
: HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever
: PARKING LIGHT PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light
: TURN SIGNALS, FRONT Includes Reflectors and Solid State Flashers; Flush Mounted
: WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent, Integral with Turn Signal Lever
HORN, ELECTRIC (2) Disc Style
ALTERNATORS - Dual {Denso SC2/SC6} Dual, Brush Type, 12 Volt, 150 and 220 Amp Capacity
TRAILER BRAKE CONTROL Integrated
BODY BUILDER WIRING Rear of Frame; Includes 1 Connector for Separate Ground/Backup/ Left and Right Hand Turn, Left and Right Hand Tail/Stop/ Accessory Power and Combined for Left and Right Hand Stop/Turn
BATTERY SYSTEM {VARTA} Maintenance-Free, (2) 12-Volt 1300CCA Total, Top Threaded Stud
TAIL LIGHT WIRING MODIFIED Includes: Wiring for Standard Lt & Rt Tail Lights; Separate 8.0' of extra Cable Wiring for Lt & Rt Body Mounted Tail Lights
RADIO AM/FM/Clock/Bluetooth, Seek/Scan, with color Touch Panel Display, SPEAKERS (6)
CAMERA SYSTEM, REAR VIEW Includes Camera, Mounting, Wiring and Interface to the Monitor, for the Back-up Camera System
BACK UP ALARM Electric, 102 dBA
TRAILER CONNECTION SOCKET Mounted at Rear of Frame, Wired for Turn Signals Combined with Stop, Compatible with Trailers with Combined Stop, Tail, Turn Lamps
STOP, TURN, TAIL & B/U LIGHTS Multi-Function, Sealed, Incandescent Stop, Turn and Tail Lights, Backup Lights with Rear Reflex Reflector, Includes License Plate Light
BATTERY BOX Steel, w Plastic Cover, 2 Batt Capacity, 28" Wide, Mounted Left Side Under Cab
JUMP START STUD Remote Mounted
HEADLIGHTS Halogen, Composite Aero Design, ChromeTrim Bezel, with Daytime Running Lights
SWITCH, AUXILIARY 1 to 4 Latching Switches with 30-Amp Fuses
CLEARANCE/MARKER LIGHTS (5) Amber LED Lights, Flush Mounted on Cab
GRILLE Chrome, with Chrome Headlight Bezels
RADIATOR STONE GUARD Mounted to Front Bumper
BUG SCREEN Mounted Behind Grille
FRONT END Tilting, Fiberglass, with Three Piece Construction
FENDER EXTENSIONS Painted
PAINT SCHEMATIC, PT-1 Single Color, Design 100
PAINT TYPE Base Coat/Clear Coat, 1-2 Tone
PAINT CLASS Premium Color

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6.6 Duramax Engine Includes
GLOW PLUG Automatic with Indicator Light
OIL FILTER, ENGINE Spin-On Type
FAN DRIVE Viscous Type, Screw On, Rear Tether, Electronically Controlled
AIR CLEANER Single Element, with Water Separator
EMISSION, CALENDAR YEAR {International 6.6} EPA, OBD and GHG Certified for Calendar Year 2024
12WGG THROTTLE, HAND CONTROL Engine Speed Control for PTO; Electronic Controlled, On/Off Switch Mounted on Dash, with Steering Wheel Button Control
GOVERNOR Electronic Road Speed Type; with 75 MPH Default
CARB IDLE COMPLIANCE Federal, Does Not Comply with California Clean Air Idle Regulations
BLOCK HEATER, ENGINE 120V/800W
CARB EMISSION WARR COMPLIANCE for International 6.6 Engines
RADIATOR Aluminum, 3-Row, Down Flow, Front to Back System, 730 SqIn Louvered, with 578 SqIn Charge Air Cooler, Includes In-Tank Oil Cooler
TRANSMISSION, AUTOMATIC {Allison 2700 EVS} 6th Generation Controls, Close Ratio, 6-Speed with Double Overdrive, with PTO Provision, Less Retarder, Includes Park Pawl, with 23,500-lb GVW, On/Off Highway
TRANSFER CASE {Meritor MTC-3203} 2-Speed, Gear Drive, 3,000 lb-ft Torque Rating, Less PTO Provision, Electric Shift Control
DIFFERENTIAL, LOCKING {Detroit Locker} No-Spin; for Dana Spicer (previously Eaton) Rear Axles
AXLE, REAR SGL {Dana Spicer S140} Single Reduct., 15,500-lb Capacity, 190 Wheel Ends. Ratio: 4.30
SUSPENSION, REAR, SINGLE 15,500-lb Capacity, Vari-Rate Springs
SHOCK ABSORBERS, REAR (2)
FUEL TANK Top Draw, Plastic, Rectangular, 17" Tank Depth, 40 US Gal (151L), Includes Aux Draw Port and Fuel Filler Assembly, Mounted Between Frame Rails and Behind Rear Axle
DEF TANK 6.75 US Gal (26L) Capacity, Frame Mounted Outside Right Rail, Under Cab
Includes
: CAB DOOR LOCKS Power Door Locks All Doors
: DOME LIGHT, CAB with OFF/DOOR/ON Settings; Located in Overhead Console
: READING LIGHT, CAB Located in Overhead Console
: STORAGE POCKET, DOOR (2) Full Length, Driver and Passenger Door
MIRROR, INSIDE REAR VIEW Omit
GLASS, ALL WINDOWS Solar Absorbing, Tint
COLOR, INTERIOR Dark Ash
GAUGE CLUSTER English Speedometer, Includes Odometer; Includes 3.5" Monochromatic Display with Personalization, Warning Messages and Vehicle Information
SEAT, DRIVER High Back with Integral Headrest, with Recline, Vinyl, Fixed Lumbar
SEAT, REAR BENCH, Vinyl
SEAT, PASSENGER High Back with Integral Headrest, Vinyl, with Recline, without Center Section. Center Area of Floor Between Seats will be Untrimmed
MIRRORS (2) Manual Folding, Power Adjust, Heated, Black Heads and Arms, for 102" Load Width
SEAT BELT All Red; 4 to 6
CAB INTERIOR TRIM Classic, for Crew Cab Includes SUN VISOR (2) Vinyl
KEYLESS ENTRY SYSTEM REMOTE w/Panic Alarm and Horn Beep Lock Confirmation, Includes 2 Key Fob Transmitters
AIR BAG, FRONT, DRIVER SIDE
AIR BAG, FRONT, PASSENGER SIDE
WINDOW, POWER (4) in Left and Right Doors, Front and Rear
AIR BAG, SIDE, DRIVER Seat Mounted, Outboard Side-Impact Airbag
AIR BAG, SIDE, PASSENGER Seat Mounted, Outboard Side-Impact Airbag
AIR BAG, SIDE CURTAIN Roof Mounted, for Front and Rear Outboard Seating Positions for Driver and Passenger Sides
AIR CONDITIONER with Heater, Single Zone

WHEELS, FRONT {Alcoa 76543} DISC; 19.5x6.75 Rims, Mirror Polish Aluminum, 8-Stud, 275mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs
WHEELS, REAR {Alcoa 76543} DUAL DISC; 19.5" Mirror Polish Aluminum Outer and Inner Wheel, 8-Stud (275MM BC) Hub Piloted, Flanged Nut, Metric Mount, 6.75 Rims; with Steel Hubs
COATING IDENTITY, FRONT WHEELS {Alcoa Dura-Bright XBR/EVO} Disc Front Wheels, Aluminum, with Vendor Applied Treatment, Not for Wide Base
COATING IDENTITY, REAR WHEELS {Alcoa Dura-Bright XBR/EVO} Disc Rear Wheels, Aluminum, with Vendor Applied Treatment, Not for Super Single/Wide Base
(2) TIRE, FRONT 225/70R19.5 Load Range H HDR5 (CONTINENTAL), 643 rev/mile, 87 MPH, Drive
(4) TIRE, REAR 225/70R19.5 Load Range H HDR5 (CONTINENTAL), 643 rev/mile, 87 MPH, Drive

CHASSIS MODIFICATIONS

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

TIRE PRESSURE INDICATORS

There shall be LED air pressure sensor caps shipped loose for the customer to install on each tire's valve stem. Each shall be self-calibrating, memorizing pressure when initially installed. Each shall be easily recalibrated by simply removing and reinstalling. The bright LED allows for visual checks in daylight. This active tire pressure monitoring system shall start flashing RED if the tire pressure drops 5 to 10 psi.

CONTROL CONSOLE BETWEEN SEATS

A center control console shall be installed, on the cab floor, between the driver and the officer seat. The top shall be removable to allow access to the components and wiring inside the console. The top of the console shall contain items such as the rocker switch panel for all warning lights and the door ajar warning light. It shall also contain the electronic siren head, and other controls (as applicable).

CREW SECTION SCBA SEATS

The rear seating provided with the chassis shall be replaced with two (2) individual Bostrom 400 CT seats with SCBA seat backs and Secure-All brackets. A seat riser shall be included. Note that each SCBA seat shall have a headrest. NOTE: Each headrest shall have the Darley logo.

REAR HITCH-WINCH RECEIVER ASSEMBLY

A 2" square hitch receiver assembly shall be provided at the rear of the chassis, to allow attachment of a trailer or portable winch. A 12 volt, high amperage circuit with appropriate protected wiring shall be provided, with a receptacle near the receiver. A round 7-wire covered trailer connector, in a bracket, shall be installed near the rear hitch receiver and wired into the vehicle.

AIR HORNS

Two (2) air horns shall be installed under the chassis, on the right side. The air horns shall be connected to the onboard chassis air system and be equipped with a pressure protection valve at the air tank.

AIR HORN CONTROL

A momentary rocker switch, with a red switch cover, shall be provided in both the center console control within easy reach of the driver or the officer and the pump panel to activate the air horns.

NFPA COMPLIANT TREADPLATE RUNNING BOARDS

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

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

MASTER SWITCH - CHASSIS ON/OFF

A master battery switch shall be provided inside the cab, installed into the side of the center console near the front of the driver's seat in a convenient location. This switch shall cut all 12 volt power to the fire related body and pumping accessories. This master switch shall include a green colored master switch "on" pilot light.

BATTERY CHARGER

An automatic battery charger shall be installed in the cab and connected to the chassis batteries. The maximum output shall be 15 amps. The system automatically becomes inactive when the batteries are fully charged. A built in battery saver feature shall be included for auxiliary electrical loads such as hand lights and portable radios. A weatherproof bar graph display shall be included and mounted in the driver’s side running board next to the 120 volt Auto Eject.

This onboard battery charger shall be located in the back of the 4-door cab on the floor and shall have a protective cover built around it. It shall be plugged into or powered by a household style outlet/junction box powered by the Auto-Eject mentioned elsewhere in these specifications. This leaves an open 120V port on the outlet for FD to use for in-station charging of equipment.

120V SUPER AUTO-EJECT

A 20 amp, 120 volt Super Auto Eject receptacle with weatherproof cover shall be provided and connected to the on board combination charger/compressor, specified elsewhere. The receptacle shall be wired so when the vehicle ignition is energized, the receptacle automatically ejects the external plug from the receptacle. The Super Auto Eject shall be a completely sealed assembly to prevent internal contamination. The internal switch arrangement shall eliminate the possibility of arching at the contacts.

The receptacle shall be located below the driver door area.
A mating plug shall be furnished and shipped loose.

STAINLESS STEEL HUB COVERS

A set of polished stainless steel decorative wheel trim including hub covers shall be installed on both the front and rear wheels of the chassis. Stainless steel lug nut covers shall also be included and installed.

REAR MUD FLAPS

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

CHASSIS EXHAUST

The chassis exhaust pipe shall discharge at the rear wheels as provided with the chassis.

BACK-UP ALARM (Chassis Provided)

An electronic back up alarm shall be provided with the chassis. See the chassis specifications.

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
--- Transfer case fluid
--- Air compressor system lubricant

The ID plate shall also include the following:

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

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.

TRAVEL HEIGHT AND GVWR LABEL

A "high visibility" plate shall be permanently mounted in the cab, visible to the 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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DARLEY PUMP, PUMP MODULE, AND RELATED ITEMS

NFPA COMPLIANT PUMP

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

SIDE PANEL PUMP MODULE

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

SIDE OPERATED PUMP PANEL

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

PANELS
The pump panels shall be removable.

TRIM RINGS
All suction and discharge ports shall be fitted with removable trim rings.

GAUGES AND CONTROLS
All controls and gauges shall be functionally grouped and installed to allow easy access for service and replacement. Gauges (and/or flowmeters if present) shall be located as nearly adjacent to the valve control as possible.

PRESSURE GAUGES

A total of seven (7) 2.5" liquid filled gauges, each with a stainless steel bezel shall be provided for the standard discharges. Each gauge shall be located on the pump operator's panel near the respective discharge control.

Each gauge shall be a back lit 2.5” glycerin filled pressure gauge with the following features:

---Glycerin filled
---Full 2.5” dial for easy readability
---Case material: Zytel nylon
---Pointer: Aluminum
---LED lighted
---Freeze and clog proof
---Bezel material: chrome plated nylon
---Made in the USA

TREADPLATE - FRONT OF MODULE

The front of the pump module is to be fitted with aluminum treadplate to enclose the entire front of the pump house framework. It shall be attached with stainless steel sheet metal screws and will be designed to be removable.

SIDE PANELS

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

GAUGE PANEL - STAINLESS STEEL

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

ACCESS PANEL - STAINLESS STEEL

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

COLOR CODED LABELS WITH BEZELS

A set of color coded and function described labels shall be provided on the apparatus 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 mounted in an adhesive backed chrome plated bezel.

PUMP PANEL LIGHT SHIELDS (LED)

Light shield assemblies shall be provided above the left and right side pump panels. There shall be LED lights installed within the shield. A switch located on the pump operator's panel shall be provided to activate the lights.

PUMP COMPARTMENT LIGHTS (LED)

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

RUNNING BOARDS

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

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

GRIP INSERTS IN RUNNING BOARDS

Two (2) extruded aluminum inserts, each with an open grated grip type surface, shall be installed, one each side, in the pump module running boards. The inserts shall occupy nearly the entire running board surface area.

SINGLE STAGE FIRE PUMP (CAFS)

The pump shall be a Darley PSMC single stage fire pump, capable of 1500 GPM rating.

The pump casing shall be a fine grain cast iron alloy, vertically split, with a minimum 40,000 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 as well as cooling the vehicle chassis engine.

The impeller shall be a high strength bronze alloy of a radial flow design for high suction lift capacity, accurately balanced and splined to the pump shaft for precision fit and durability.

The pump shaft shall be precision ground stainless steel with long wearing, very hard, chrome oxide coating. The shaft shall be splined to receive broached impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by engine. Shaft seal comes standard with face-type, self-adjusting corrosion- and wear-resistant mechanical seals.

The bearings provided shall be heavy duty, deep groove, and 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 using oil seals and water slingers.

The transmission case shall be heavy duty cast iron alloy with adequate oil reserve capacity for low operating temperatures. A magnetic drain plug shall be provided. Transmission case shall include a dip stick for checking oil level. The transmission shall be cooled with the patented Darley AutoCool™ plate style cooler mounted on the bottom of the gearcase. Due to potential damage from freezing, designs which send water into the transmission are prohibited.

The pump drive shaft shall be precision ground, heat treated alloy steel, with a minimum 2.50 inch by 10.00 inch spline 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, precision ground and carburized.

The gear shift 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 teeth shall be bullet nosed to minimize potential for a butt-tooth condition. 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 head check valve assembly to allow priming of the pump from draft with discharges open and caps off, and to prime faster than designs that require the air to be evacuated from the discharge manifolding.

Discharge outlets shall have extensions with companion flange openings to allow ease of service.

CAFS COMPATIBLE

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

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.

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

PUMP SHIFT

air powered pump shift shall be installed in the cab console between the driver and officer. The shift shall engage the fire pump. The apparatus pump shift shall be engaged only when apparatus is in a stationary position and the parking brake is engaged. The following indicator lights shall be included with pump shift.

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

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

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. anode shall be mounted on the suction side of the pump and anode on the discharge side of the pump.

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.

DRIVELINE MODIFICATION

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

CAFS AIR COMPRESSOR SHIFT

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

ELECTRIC PRIMER (FLUIDLESS)

A 12 volt 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.
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".

PRESSURE GOVERNOR

A Darley "***AUTO CONTROL***" electronic pressure governor and engine monitoring system shall be installed on the pump operator's control panel. The governor shall be configured to operate with the chassis engine. It shall regulate engine RPM to maintain a consistent pressure out of the water pump over a wide range of outgoing flows. The unit shall operate in both RPM and PSI modes. The 6" tall x 7-1/2" wide 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.
--Four (4), 10 segment bar graphs for engine oil pressure, engine temperature, transmission temperature, and battery voltage. The bar graph display shall flash if low voltage, low oil pressure, high transmission temperature, 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.

INTAKE RELIEF VALVE(S)

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

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.

MASTER DRAIN

One (1) rotary style master drain shall be installed with the control 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. The drain valve shall be mounted as low as necessary to drain the lowest

ports on the pump, but as high as possible to provide as much ground clearance as possible under the pump. An "open and closed" label with arrows indicating direction shall be installed on the drain valve control.

1/4 TURN DRAINS - LIFT TO OPEN

Each gated 1.5" or larger inlet and discharge shall have a quarter turn drain valve installed. The drain valves shall be located along the bottom on each pump panel and are operated by lifting the handle to open the drain/bleeder. Inlets & discharges shall be plumbed to each drain at the lowest point. Each drain/bleeder 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 long handled control lever with a color coded function label installed near the respective drain control.

SUCTION INLETS

6" LEFT SIDE INLET WITH BUTTERFLY

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. The inlet shall have a 6" butterfly valve with an automatic relief and electric control installed in the side suction sleeve casting, completely behind the panel.

A switch with indicator lights shall be mounted on the operator's control panel. The relief valve shall be mounted on the intake side of butterfly valve and factory preset to 185 psi with a maximum pressure of 300 psi. The valve shall relieve excess pressure to atmosphere.

A green "open" indicator light and a red "closed" indicator light shall be provided.

There shall be no exception to the above requirements.

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.

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.

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.

HEAT EXCHANGER

A supplementary, self contained heat exchanger of bronze construction with copper tubing shall be installed. The design utilizes water from the discharge side of the fire pump to cool the engine by transferring the heat from the engine cooling system without intermixing within the heat exchanger. A filtered, screened discharge outlet on the fire pump shall be the source of the cooling water provided. The water lines to the heat exchanger are to fully drain when the pump master drain is opened.

PLUMBING SYSTEM (STAINLESS/BRASS)

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

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

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

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

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

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

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

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

2.5" SUCTION(S) - LEFT SIDE (Darley)

2.5" 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 2.5" female NST chrome inlet swivel, a chrome male plug, chain, and a brass inlet strainer.

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

2.5" LEFT REAR AUTO TANK FILL

A 2.5" electronic tank fill valve shall be provided at the left rear of the apparatus. It shall have a chrome female swivel with strainer, plug and chain, and NST threads.

A quarter turn 3/4" drain bleeder valve shall be supplied and installed with the control knob approximately 6" below the inlet swivel. A drain hose shall be extended through the compartment floor to remove the water from the piping outboard of the electric 2.5" AutoFill valve.

The left rear direct tank fill shall include an automatic direct water tank fill system.

The system shall operate refilling operations independently, without monitoring by the engineer. Refill operation shall not require apparatus or fire pump to be running. The system shall be capable of handling pressurized sources up to 300 psi. The system gets an electronic signal from the water level gauge.

The water level gauge supplies a programmed signal to stop filling when the tank level is at 85% full, and resume filling when the tank level reaches 50%. Valve system shall be able to be manually overridden in case of electric failure.

The controller shall have three toggle positions, with command signals to the fill valve:
1) Auto - Fully automates the water fill process, opens and closes the valve from signals sent by the water level gauge
2) Off - Closes the valve
3) Open - Opens the valve

The system shall enable the operator to perform the following control / operation functions and status indicators for the refill operation:
1) Provide toggle positions for Auto/Off/Open for control of electric refill valve
2) Solid green light advises the valve is open
3) Solid red light advises the valve is closed

DIRECT FILL CONTROL

The direct fill control shall be located on the pump operator's panel.

TANK TO PUMP LINE (MANUAL)

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

CHECK VALVE

A 3" swing type check valve shall be provided inline of the 3" water tank to pump line.

2" TANK FILL

A 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.

AUTOCAFS - COMPRESSED AIR FOAM SYSTEM

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

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

The air compressor gear train shall provide a means to engage and disengage air compressor as required. The air compressor system shall include a pressurized oil lubrication system, oil separator, oil filter, inlet air filter, and modulating inlet air control. The air compressor system shall be provided with an air pressure balancing system to automatically balance the air pressure to match water pressure for CAFS use. The operator can operate the pump at 100 PSI while recirculating water from the tank when operating air tools from the CAFS air chuck on the pump panel. The air compressor system shall also have mounted on the panel a compressor engaged light, compressor pressure gauge, and an oil temperature gauge with a high oil temperature warning. Gauges and controls shall be positioned and clearly marked to provide simple and easy operation.
Each of the components of this Automatic Compressed Air Foam System - (air compressor, drive system, foam proportioner, control and instrumentation system) shall be sized, driven and controlled to produce a well operating and reliable CAFS unit.
This Darley automatic compressed air foam system (Darley AutoCAFS) shall be completely installed and tested before delivery by the factory.

FOAM OUTLETS

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

CAFS AIR COMPRESSOR SHIFT

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

CAFS AIR PRESSURE GAUGE

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

AIR OUTLET 1/4" CAFS SUPPLY

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

CAFS TESTING - DEMONSTRATION - MANUAL REQUIREMENTS

The compressed air foam system shall be tested and run for a minimum of eight (8) hours prior to delivery. After testing is completed, the foam system and CAFS oil system strainers shall be removed and flushed. The system shall then be delivery tested once again to ensure all strainers, fittings, and components are installed properly.

Demonstration for proper operation and maintenance shall be provided for Purchaser's designated personnel at a location mutually agreed upon between the Purchaser and the manufacturer.

FOAM PROPORTIONER (2001 System)

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

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

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

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

The system shall include an "auto on" feature.

Foam Concentration.....Water Flow Range

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

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

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

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

The system shall be provided with a low foam tank level switch which shall alert the 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.

The system shall be completely installed inside the pump compartment, with digital control unit and instruction plate mounted on the pump operator’s 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.

DARLEY FOAM TANK REFILL

A Darley 12 volt power foam tank fill system DFRS001-KITshall be installed to eliminate the need to climb up onto the hosebed to fill the foam tank through the fill tower. The system shall operate completely while standing on the ground. The system shall operate by attaching a suction hose to a pre-plumbed panel connection using a stainless steel cam-lock fitting. The pick-up wand shall then be placed in the foam concentrate container. The operator then lifts a toggle switch to activate the 12 volt pumping system, which manually fills and stops only when the switch is released. When the "on board" foam tank is full, a green light will illuminate. All components are designed to be used with Class A foam and therefore require no flushing.

System includes:

---High-capacity concentrate pump
---Continuous-duty 12-volt motor
---"Tank Full" Indicator light
---Panel plate
---Stainless fittings and cap
---1″ concentrate pick-up wand
---Check valves
---6′ of one inch hard suction hose with wand

POWERFILL CONTROL

The Foam Tank refill inlet and control shall be at the right side pump module.

SECONDARY FOAM PICKUP HOSE

This unit will be provided with a secondary foam pickup tube. This alternate source to the foam proportioner will be provided with a manual 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 hose approximately four foot long. This hose will be provided near the pump panel on the side of the truck and is intended to work best with the pail of foam setting on the running board.

2.5" LEFT SIDE DISCHARGES (Darley)

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

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

2.5" RIGHT SIDE DISCHARGE (Darley)

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

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

3" RIGHT SIDE DISCHARGE

A 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 manual control from the operator's panel.

STORZ ADAPTER

The discharge shall have a 3" NSTF x 4" Storz 30 degree elbow with cap and retaining cable. This same adapter is also listed in the equipment section of the specifications for convenience.

TWO CROSSLAYS (CAFS)

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

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

CAFS

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

SINGLE CROSSLAY - 2.5" (CAFS)

A 2.5" crosslay shall be installed above the pump. The crosslay shall have capacity for 200 ft. of 2.5" double jacket fire hose. The crosslay shall have 2.5" plumbing and 2.5" self locking valve and terminate with a 2.5" NPT x 2.5" NST chicksan type swivel up through the center of the crosslay flooring. The swivel shall allow hose out either side of the crosslay. The outside edges of each side opening shall be trimmed with polished stainless steel. A manual control shall be furnished at the pump operator's panel.

CAFS

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

ALUMINUM CROSSLAY COVER

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

DUNNAGE AREA

A recessed, removable dunnage (storage) compartment shall be provided above the pump compartment and shall be full width of the pump compartment. The compartment shall be smooth aluminum material. The ends shall be left open with hinged doors provided on each side of the pump house.

WATER LEVEL GAUGE

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

FOAM LEVEL GAUGE

An FRC ***"Tank Vision"*** foam 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 calibration system shall allow the tank transducer to be calibrated to work with most any tank configuration.

AIR HORN SWITCH

There shall be a RED air horn activation switch mounted on the pump operator's panel. It shall be a weather resistant momentary rocker switch and shall be clearly labeled.

PUMP MODULE HANDRAILS

There shall be a handrail installed on each upper corner of the pump module. The handrails are to assist in climbing up onto the top of the module or to access the hosebed area. Each shall be 1-1/4" aluminum extrusion, approximately 16" long, with rubber inserts, mounted in chrome plated stanchions. Rubber gaskets shall be placed between the handrail stanchions and the module surface, if needed.

--The handrails shall be located on the upper side of the left and right sides of the pump module.

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WATER TANK, FIRE BODY & RELATED COMPONENTS

BODY CONSTRUCTION

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

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.

COPOLYMER BODY CONSTRUCTION

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

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

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

REAR TOW EYES

Two (2) heavy duty laser cut steel tow eyes, 1/2" thick with a 1.5" I.D. cutout, shall each be bolted to the rear chassis frame rails with 3/4" grade 8 bolts. These black tow eyes shall extend through the rear body panel and include stainless steel trim plates.

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.

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.

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.

HOSE BED CAPACITY

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

HOSE BED FLOORING

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

HOSE BED DIVIDER(S)

Two (2) 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 with a slotted hand hold cut-out on the rear portion.

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.

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.

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.

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.

RUB RAILS

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

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

FRONT FOLDING STEPS LEFT - LIGHTED

Three (3) large, heavy duty lighted folding steps shall be furnished and located at the front body face of the left side compartments. There shall be a barrier material installed between the body surface and the steps.

FRONT FOLDING STEPS RIGHT - LIGHTED

Three (3) large, heavy duty lighted folding steps shall be furnished and located at the front body face of the right side compartments. There shall be a barrier material installed between the body surface and the steps.

REAR FOLDING STEPS - LIGHTED

Two (2) large, heavy duty, chrome folding steps with built in LED lighting shall be furnished and located on the back of the apparatus both to one side of the rear compartment. There shall be a barrier material installed between the body surface and the steps.

ACCESS HANDRAIL(S)

Two (2) approximately 10" long access handrail(s) shall be provided. Each handrail specified shall be 1-1/4" extruded aluminum tubing, with rubber grip inserts, in chrome or stainless steel stanchions. Drain holes shall be provided to allow moisture drainage. There shall be a barrier material installed between the body surface and the handrail(s). The handrail(s) shall be located follows: At the upper rear of the back of the truck on the top near the corners of the hosebed.

HORIZONTAL REAR CROSS RAIL

One (1) horizontal rear cross rail 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 1.25" 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.

400 GALLON TANK - COPOLYMER

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

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

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

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

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

A fill tower shall be installed on 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.

TANK DRAIN VALVE

A manual, 1/4 turn, corrosion resistant, 3/4" bronze drain valve with a stainless steel ball shall be installed on the bottom of the tank clean out sump. It shall act as a tank drain and can also be used to flush any sand or sediment from the sump of the water tank quickly and easily.

TANK OVERFLOW

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

FOAM TANK

A 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.

SUBFRAME HOT DIPPED GALVANIZED

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

The subframe shall be carbon steel, sandblasted, then be treated with a hot dipped galvanizing process to offer the best protection against corrosion.

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

FENDERETTES

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

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 bright aluminum treadplate with a grip strut type insert, with openings to allow debris to fall through. The insert shall meet recommended requirements for non-slip surfaces.

The rear tailboard shall be full width of the rear body. The rear tailboard shall be bolted to the support assembly. The tailboard height from ground to first step shall not exceed 24".

COPOLYMER COMPARTMENTS

LEFT SIDE
1.) One (1) compartment ahead of the left side rear wheels, approximately 17" wide x 57.5" high x 22" deep. The door opening shall be approximately 15" wide x 43" high.
2.) One (1) compartment over the left side rear wheels, approximately 45" wide x 40" high x 22" deep. The door opening shall be approximately 40" wide x 36" high.
3.) One (1) compartment behind the left side rear wheels, approximately 36" wide x 57.5" high x 22" deep. The door opening shall be approximately 33.75" wide x 43" high.

RIGHT SIDE
4.) One (1) compartment ahead of the right side rear wheels, approximately 17" wide x 57.5" high x 22" deep. The door opening shall be approximately 15" wide x 43" high.
5.) One (1) compartment over the right side rear wheels, approximately 45" wide x 40" high x 22" deep. The door opening shall be approximately 40" wide x 36" high.
6.) One (1) compartment behind the right side rear wheels, approximately 36" wide x 57.5" high x 22" deep. The door opening shall be approximately 33.75" wide x 43" high.

REAR COMPARTMENT

7.) One (1) compartment at the apparatus rear, approximately 48" wide x 32.25" high x 26" deep. The door opening shall be approximately 42" wide x 25.75" high.

The compartment shall have a roll up door.

REAR ROLL UP DOOR FINISH

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

ROLL UP DOORS

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

ROLL UP DOOR CONSTRUCTION

There shall be aluminum roll-up shutter doors installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized aluminum. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slats must have interlocking joints with an inverted locking

flange. Slat inner seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk.

A magnetic door ajar switch shall be provided and installed within the shutter door track. Striker block shall be mounted to the door track outside of the compartment. Door switch shall be controlled by a magnet installed into the shutter.

The shutter door assembly shall be manufactured and assembled in the United States.

SIDE ROLL UP DOOR FINISH

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

AIR PACK BRACKET(S)

Six (6) Ziamatic SCBA air pack mounting bracket(s) with a 6.75" clamp shall be provided and mounted in the specified compartment(s).
The bracket(s) shall be mounted in the following compartments: Compartment 4. Four (4) of the brackets are for SCBA bottles only. Two (2) brackets will be for complete SCBA Air Packs.

ENCLOSED LADDER STORAGE - SLIDE IN - RIGHT

A slide in ladder storage compartment shall be provided at the right side of the apparatus above the body compartments. It shall be located at the same height as the hose bed. Access shall be from the rear of the apparatus. Appropriate stops shall be provided, if needed, at the front of the ladders.

A horizontally hinged aluminum door with a push button style latch shall be provided to enclose the ladders at the rear. A switch shall be provided to activate compartment door ajar circuit.

The ladder storage shall have capacity for one (1) aluminum 20 ft. three section extension ladder (measuring 100" collapsed), and one (1) aluminum 8 foot roof ladder.

SUCTION STORAGE - LEFT

A slide in, suction hose storage compartment shall be provided at the left side of the apparatus above the body compartments. It shall be located at the same height as the hose bed. Access shall be from the rear of the apparatus. Appropriate stops shall be provided at the front of the compartment, if needed depending upon hose length selected, to keep the hoses from sliding in beyond reach.
A horizontally hinged aluminum door with a push button style latch shall be provided to enclose and secure the two (2) suction hoses at the back of the truck. 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.
The third section of suction hose shall be located in the lower driver side section of the hosebed.

LONG TOOL STORAGE COMPARTMENTS

There shall be two (2) slide in, long tool storage compartments, one each side. They shall be accessed from the rear of the truck and include a hinged door with securing latch. They shall measure about 9" wide x 7" high and

help to utilize the otherwise unused space in the upper side compartments up behind the roll of the roll-up doors. These compartments can accommodate pike poles or similar long handled tools up to 8 feet in length.

FUEL FILL

The chassis fuel fill inlet line shall be routed to a recessed area at the side of the body, near the rear wheels. A fuel cap shall be provided. A label designating the type of fuel to be used shall be installed near the fuel fill.

SHELVING TRACKS

Unistrut type tracks shall be provided in seven (7) body compartment(s). The tracks shall be mounted vertically from floor to ceiling. A minimum of four (4) tracks shall be provided for each compartment specified.
The following compartments shall have unistrut track installed:
--Each side body and rear compartment.

HORIZONTAL TRACKS

Unistrut type tracks shall be provided in two (2) body compartment(s). The tracks shall be mounted horizontally on the back wall of the specified compartment(s). The tracks shall be used to mount components such as air bottle brackets. The tracks shall allow side to side adjustment of mounted components. A minimum of two (2) tracks shall be provided for each compartment specified.

NOTE: The following compartments shall have unistrut track installed:
--- set in the left side body compartment over the rear wheel well.
--- set in the right side body compartment over the rear wheel well.

ADJUSTABLE SHELVING

Shelving and other compartment storage solutions are optional and priced specifically for each compartment. Please evaluate your equipment list and request shelving, pull out trays, and tool-boards based on your specific fire department equipment storage needs.

PAINT, STRIPING, AND LETTERING SECTION

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

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

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

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

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 closely as possible.

WHEEL RIMS

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

LETTERING

The lettering for the apparatus shall be supplied and installed by the Purchaser/End User following payment and delivery of the apparatus.

REFLECTIVE STRIPE

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

The stripe shall be a **4"** wide reflective stripe. The reflective stripe color shall be **WHITE**. The reflective stripe shall be applied in a straight line along each lower side of the chassis and onto the front compartment. An angled design going upward towards the second compartment shall then be achieved with the stripe then continuing back horizontally along the second body compartment door on each side and then continuing straight to the rear corners of the truck.

CAB DOOR REFLECTIVE MATERIAL

The reflective material shall be installed on the lower interior portion of the driver and officer cab doors, and each of the two crew doors. The color of the reflective material shall be **WHITE**.

REAR CHEVRON STRIPING

There shall be alternating reflective striping provided at the apparatus rear, in a chevron stripe pattern. At least 50% of the apparatus rear shall have the retroreflective chevron striping.
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.
3M Scotchlite material is to be used. The chevron stripes shall each be 6" wide.

CHEVRON COLORS

The chevron pattern shall be alternating RED and LEMON YELLOW stripes.

12 VOLT ELECTRICAL SYSTEM (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 and to withstand prolonged temperatures of up to 350 degrees Fahrenheit. The wiring shall be resistant to grease, oil, fluids, and abrasion and shall meet or exceed S.A.E. Certification J1128. 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.

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.

RUNNING LIGHTS & REFLECTORS

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

LICENSE PLATE HOLDER & LED LIGHT

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

REAR DIRECTIONALS (LED)

Rear directional lighting shall be supplied as follows:
Two (2) 6" x 4" LED stop and taillights, one each side - Red.
Two (2) 6" x 4" LED turn signals, one each side - Amber.
Two (2) 6" x 4" LED back up lights, one each side - Clear.

HOUSINGS FOR DIRECTIONALS

The rear directional lights shall each be housed in a chrome finish bezel designed to hold four (4) lights each. The fourth light location shall be utilized for lower rear warning lights.

REAR STEP LIGHTS (LED)

Two (2) clear LED step lights shall be furnished and shall be located, one on each side at the apparatus, rear to illuminate respective stepping surfaces. Lighted folding steps also satisfy this requirement.
The lights shall be activated with the parking brake.

FRONT BODY STEP LIGHTS (LED)

Two (2) clear LED step lights shall be furnished and located, one each side, at the front face of the apparatus body to illuminate the respective stepping surfaces. Lighted folding steps, if provided, also satisfy this requirement.
The lights shall be activated with the parking brake.

COMPARTMENT LIGHTING (LED)

Each body compartment shall contain one (1) LED clear vertical strip light assembly. The compartments over the body wheel and the rear compartment shall have two (2) strip lights, one on each side of the door. Strip lighting provides uniform lighting throughout the compartment even when shelves are installed. The compartment strip lighting shall be automatically activated whenever a compartment door is opened.

Each roll up door shall have an integral "door open" indicator magnet in the door track. If the door is not properly closed, it shall activate the "Do Not Move Vehicle" light in the cab.

"DO NOT MOVE APPARATUS" LIGHT (LED)

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

FOUR DOOR CAB GROUND LIGHTING (LED)

The four (4) door cab shall have a clear LED 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 parking brake is set.

UNDER BODY GROUND LIGHTS (LED)

Four (4) clear LED 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 parking brake is set.

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.

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

WHELEN WARNING LIGHT SYSTEM (LED)
LIGHT BAR

Zone A - (Upper Front) - A 60” LED lightbar shall be provided and installed. The lightbar shall incorporate an anodized, extruded, heavy duty aluminum base and include two front and rear corner modules, and four forward facing interior modules. All LED light modules shall consist of both white and red linear LEDs.
The solid state lightbar shall be vibration resistant. All electronic components are covered by a five-year factory warranty. The bar shall include a mount kit with hardware. Lens Color: Clear
Light bar shall be mounted on the centered forward section of the cab roof. The light colors shall be as follows: Combination of red and white lights. All forward facing white lights shall be switched as Front Scene lights and be controlled with a switch inside the chassis cab.

Zone A (Lower Front) - Two (2) LED warning lights shall be mounted, one each side, on the front face of the chassis cab, cab grille, or grille guard.
The light color shall be as follows:
Driver's Side - **Red**, Officer's Side - **Red**

Zone B (Right Side) - Four (4) LED warning lights, shall be mounted on the right side of the vehicle. One at the lower front fender area, one towards the rear in the wheelwell and two on the upper sides of the apparatus body.

Zone D (Left Side) - Four (4) LED warning lights, shall be mounted on the left side of the vehicle. One at the lower front fender area, one towards the rear in the wheelwell and two on the upper sides of the apparatus body.

The light colors shall be as follows:
Driver's Side - **Red**
Officer's Side - **Red**

Zone C (Rear-Upper) - Two (2) rear facing 6x4 LED warning lights shall be provided and installed on the upper rear body sides. The light colors shall be as follows:

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

Zone C (Rear-Lower) - Two (2) 6 x 4 LED warning lights shall be mounted, one each side, at the lower rear of the apparatus. The light colors shall be as follows:
Driver's Side - **Red**.
Officer's Side - **Red**.

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.

TRAFFIC ADVISOR (LED)

A rear “arrowstick” or traffic advisor shall be provided. The traffic advisor shall incorporate a rectangular extruded black powder coated aluminum chassis with six amber LED® lights with waterproof connectors. The solid-state traffic advisor shall be vibration resistant.
The traffic advisor shall include a control head mounted in the cab. It shall have four programmable directional sequence flash patterns of left, right, split, and flash. The LED display on the control head shall replicate the directional sequence. Lens Color: Amber

RECESSED MOUNTING

The rear directional light bar shall be recessed into the rear Poly body panel of the apparatus, centered at the upper rear portion. The recessed pocket in the body shall be trimmed with a decorative stainless steel enclosure around the arrowstick.

SIREN AMPLIFIER

A 12 volt siren amplifier shall be provided and installed on the center console. The siren shall have the ability for either 100 or 200 watt output. The operating controls will consist of a power switch, manual button, PA volume switch, horn button, and rotary switch. The PC board shall have input polarity protection, output short circuit protection. The siren amplifier shall include a fuse. The solid state siren speaker amplifier shall be vibration resistant. The microphone shall be hardwired to the siren.

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

SIREN SPEAKER

One (1) siren speaker, with a 100 watt driver shall be provided and installed. The siren speaker(s) shall be mounted in a protected location that optimizes the sound projection from the speaker.

BACK-UP CAMERA INSTALLATION

A rear view, "back-up camera", system shall be installed as part of the chassis supplied package. The system shall include a camera mounted at the upper rear center of the body (when possible) and adjusted to provide a clear view of the back of the truck's tailboard and at least 30 feet behind the vehicle. LCD color display monitor shall be supplied in the chassis cab. The rear camera display shall activate when the vehicle’s transmission is placed in reverse.

12V SCENE LIGHTING

There shall be 12 volt scene lighting installed on the apparatus as follows:

BODY SIDE SCENE LIGHTS (LED)

Four (4), LED scene lights shall be surface mounted on the upper sides of the body, two each side. The lights shall mount with four (4) screws to a flat surface. Each light shall measure approximately 7” high by 9" wide and have a profile of about 2" beyond the mounting surface. The lamp head shall include a bezel.

BODY REAR SCENE LIGHTS (LED)

Two (2) LED scene lights shall be surface mounted on the rear of the body on the upper sides of the body, one each side. The lights shall mount with four (4) screws to a flat surface. Each light shall measure approximately 7” high by 9" wide and have a profile of about 2" beyond the mounting surface. The lamp head shall include a bezel.

LIGHT SWITCHING

The 12 volt scene lights shall be switched in cab and at the pump operator's panel. Three switches, at each location, labeled with an indicator light, shall control all the scene lights specified. One switch shall control all left side lights, one switch shall control all right side lights, and one switch shall control the rear scene lights.

EQUIPMENT

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

LADDERS
One (1) 8 ft. aluminum folding “attic” ladder, with slip resistant safety end shoes, shall be provided.
One (1) 8 ft. aluminum roof ladder, with folding roof hooks and prong feet, shall be provided.
One (1) 19/20 ft. three-section aluminum extension ladder(s), with prong feet, shall be provided.

SUCTION HOSE
Three (3) sections of 6" lightweight hard suction hose, with pyrolite, NST 6" couplings shall be provided.
--Two (2) sections shall be 6" x 8 ft (in the enclosed suction hose compartment). One (1) section shall be mounted on the left side of the hosebed and be approximately 6 feet long.

WHEEL CHOCKS
One (1) pair of aluminum wheel chocks shall be provided, along with underbody holders, mounted.

CAFS AIR FITTING
A male quick disconnect fitting shall also be provided and listed in the shipped loose equipment portion at the end of these specifications.

DOWNSPOUTS
A total of three (3) chrome downspouts are to be provided. Each 2-1/2” discharge shall be supplied with a chrome 30 degree elbow, with a chrome cap and a stainless steel retaining chain. Each cap shall be a vented rocker lug chrome plated brass cap, as per NFPA requirements.

STORZ ADAPTER
A 3" NSTF x 4" Storz 30 degree elbow with cap and retaining cable is to ship on the 3” discharge.

JACK STRAPS
Five (5) Fire Research JackStraps shall be provided and shipped loose. They are designed to secure fire 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.

WHIP HOSES
Two (2) whip hoses (1.75" x 48" long) shall be provided; designed to provide a means to connect/disconnect the preconnected hose load just at the side of the 1.5” crosslay hose beds.
One (1) whip hose (2.5" x 43" long) shall be provided; designed to provide a means to connect/disconnect the preconnected hose load just at the side of the 2.5” crosslay hose bed.

NOTE: Per the above, each crosslay shall be provided with a "whip line" of preconnected white hose with NST fittings, for ease of connecting and cleaning the fire hose. The whip lines shall also provide quick access to the CAFS discharge without having to unload the entire load of hose.

TOUCH UP PAINT
A pint of touch up paint shall be provided for each color used to paint the chassis or body.

PURCHASER RESPONSIBILITY

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