



AGREEMENT

This agreement is made between:

Fire Connections Inc.

2520 N. Wesleyan Blvd.

Rocky Mount, NC 27804 (The Company) and

Town of Southern Shores (The Buyer)

5375 N Virginia Dare Trail

Southern Shores, NC 27949

The Company agrees to sell, and the Buyer agrees to purchase the fire apparatus and equipment described in the Exhibits A through D attached hereto and hereby incorporated herein, all in accordance with the terms and conditions of this Agreement.

The Apparatus is described as:

One [1] E-One Typhoon Custom Pumper Q#150123B

The Apparatus shall be delivered to the Town of Southern Shores Fire Department. The approximate delivery date shall be determined once all changes are complete, as stated in our quotation documentation set out in the attached Exhibits A-D. It is agreed that such delivery is subject to delays caused by strikes, inability to obtain materials, chassis shortage and other causes beyond the control of the Company. Any special requirement regarding delivery date shall be submitted in writing with the contract.

Buyer agrees to pay a Purchase Price of:

\$ 1,255,000.00

Exhibits A-D are attached hereto and incorporated herein by reference. In the event of a conflict between this Agreement and the Exhibits, the Agreement controls.

Exhibit A-Emergency Vehicle Proposal

Exhibit B-Fire Apparatus Quotation For: Southern Shores Fire Department Exhibit

C-E-ONE Drawings

Exhibit D-Limited Warranties

Unless otherwise specified, this Purchase Price is exclusive of all Federal, State or local taxes of any nature. Any such applicable taxes will be added to the purchase price and

paid by the Company; provided, however, if the Buyer claims exemptions from any tax, Buyer agrees to furnish the applicable exemption certificate to the Company and to the extent permitted by applicable laws, to hold the Company harmless from any damage which result from the Company ultimately having any such tax assessed against it.

Late additions of equipment or modifications to the vehicle that delay the delivery of the vehicle may require submission of a separate purchase order or contract at the discretion of the sales manager.

The Company and Buyer agree that the Manufacturer's Certificate of Original (MSO) shall remain with the Company until the Purchase Price is paid in full. The Buyer further agrees that the Apparatus will not be placed in active service until the Full Purchase Price has been paid to the Company. The vehicle shall not be placed in service until full payment has been received.

Buyer agrees to pay Company in full at time of buyer takes possession of the apparatus.

Each new item of the Apparatus is warranted against defects in material and workmanship, for a period noted in the Company Proposal to the original user/purchaser, all in accordance with the Manufacturers pre-printed Statement of Warranty which is either attached to the Agreement or has otherwise been delivered to the Buyer. The buyer hereby acknowledges receipt of the Manufacturer's pre-printed Statement of Warranty and understands same.

For communications regarding this Agreement, the parties to the Agreement designate.

Cliff Ogburn as representative of the Buyer whose phone number is (252)-261-2394, and Travis Mayo as representative of the Company whose Phone number is 1-877-358-3473.

This Agreement, including its attachments and exhibits, constitute the entire understanding between the parties relating to the subject matter contained herein and merges all prior discussions and agreements. No agent or representative of the Company has authority to make any representations, statements, warranties, or agreements not herein expressed and all modifications or amendments of this Agreement, including its attachments and exhibits, must be in writing signed by an authorized representative of each of the parties hereto.

This Agreement shall not constitute a valid and binding obligation of the Company until accepted in writing by an officer of the Company at its offices. If requested by the Company, the Buyer shall furnish a satisfactory written opinion of the Buyer's attorney that the Buyer has the power to make the Agreement, that the individual signing is

authorized to sign on behalf of the Buyer, and that this Agreement is a valid, legal and enforceable obligation of the Buyer.

IN WITNESS WHEREOF, the Company and the Buyer have caused this Agreement to be executed by their duly authorized representative as of the date set forth by each.

Upon documented justification provided by the Company, the Buyer, Town of Southern Shores will be responsible for any unforeseen tariff/surcharge from suppliers.

Initial Acceptance _____

Both Company and Buyer reserve the right to cancel the contract at any time for reasons deemed necessary. If buyers cancel the contract early without cause, termination fees are likely to be imposed. Fees are not to exceed 15% of purchase price at any time.

Buyer

Fire Connections, Inc.

Buying Entity Name

Truck Sales Representative

Signature

Signature

Title

Title

Date

Date

Accepted for the Corporation by:

Signature

Title

Date



Presents To

Southern Shores Fire Department

E-ONE Custom Pumper

EXPERIENCE THE DIFFERENCE.



2520 N. Wesleyan Blvd. Rocky Mount, NC 27804
Office | 1.877.358.FIRE sales@fireconnections.com

EMERGENCY VEHICLE PROPSAL

June 9, 2026

This proposal has been prepared for:

Southern Shores Fire Department

We hereby propose to furnish to you, subject to proper execution of the attached agreement by you and by an officer of Fire Connections, Inc., the following apparatus, and equipment to be built in accordance with the attached specifications:

One (1) E-ONE Custom Pumpers per Q#1501123B \$ 1,255,000.00

- This proposal will expire in 30 days.
- The delivery will be to Southern Shores Fire Department. The approximate delivery date will be determined once all changes are complete, and the order is released to production.
- Terms of payment are cash upon pick-up unless otherwise stated.

Fire Connections, Inc.

A handwritten signature in black ink, appearing to read "Rob Ford".

Rob Ford
VP Apparatus Sales

DEALER SUPPLIED ITEMS

The following items are included in the contract and will be provided by the dealer.

One (1) \$8,000.00 Graphics Allowance to be used toward additional lettering and graphics for this unit.

One (1) \$10,000.00 Mounting Allowance to use toward mounting of equipment.

One (1) \$ 50,000.00 **Contingency Funds** available to the customer to be used for any Pre-Build changes and/or Loose Equipment purchased for this apparatus.

Travel is not included in this proposal. Any travel arrangements to E-ONE in Ocala, Florida will be the responsibility of the Southern Shores Fire Department.

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TESTING COMPLIANCE STANDARD

Hose Bed Capacity

The hose bed shall have the capacity to store the following hose from the driver's side to the officer side. 300' of 1-3/4", 300' of 2-1/2", 1050' of 5" and 400' of 3" hose.

Overall Height Restriction

The apparatus shall have no overall height restrictions.

Overall Length Restriction

The unit has no overall length restrictions.

NFPA Compliance

The E-ONE supplied components of the apparatus shall be compliant with NFPA 1900, 2024 edition.

Equipment Capacity

Equipment allowance on the apparatus shall be 2000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

BUMPERS

Bumper Extension

The bumper extension shall be approximately 28" from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16" (.188") aluminum treadplate material. The shield shall be for HD formed channel bumper with gravel shield mounted under the top bumper flange.

Heavy Duty Bumper

A heavy duty 12" high formed type front bumper constructed of 1/4" (.250") ASTM A36 steel shall be provided with 2 7/16" (2.4") top and bottom flanges. The front corners of the bumper shall be provided with a 45 degree tapered to produce up to an 8.5" wide mounting surface and to reduce swing clearance.

Additional support shall be provided from the frame rails for the outboard side areas on bumper extensions greater than 12in.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The bumper shall be painted as specified.

BUMPER TRAYS

Water Stop Angle

An aluminum angle shall be provided on the gravel shield to reduce water intrusion under the raised front bumper lid. The angle shall be located behind the front and sides of the front bumper lid.

Bumper Tray Notch

The front bumper tray shall be notched to accommodate a siren speaker and/or Q2B siren. Due to the notch, the compartment hose/equipment load shall be reduced pending the option(s) selected.

Lid, Bumper Tray

Raised diamond plate lid with dual chrome grab handles, stainless steel butterfly latches and gas shocks. The lid shall be full width (as applicable based on outboard options) and high enough to accommodate reels, rescue tools and equipment as applicable per customer specific requirements.

Recessed Bumper Tray

Hose tray constructed of 1/8" aluminum diamond plate shall be recessed into the front bumper extension with floor/bottom slotted to allow drainage (no slats). The tray shall extend full width of the bumper as applicable based on outboard options. The tray shall have multiple depth that are all 12" deep. Frame extensions shall be notched to provide maximum available tray depth above the frame rails.

FRAME ASSEMBLY

Rear Underbody Support Frame

The body shall be supported at the rear by a steel frame extension bolted to the chassis frame rails. The frame rails and frame extension shall be isolated from the aluminum body extrusions by 5/16" x 2" fiber reinforced rubber.

The frame extension shall be built with (2) 2.5" sq. x .25 wall thickness x full width cross rails welded to (2) 2.5" sq. x .25 wall thickness side rails. The frame extension assembly will be welded to steel weldments, which are secured to the chassis frame with grade 8 5/8" bolts.

The frame extension shall not interfere with N.F.P.A. minimum requirements for angle of departure.

Frame Assembly

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each frame rail shall have the following minimum specifications in order to minimize frame deflection under load and thereby improve vehicle ride and extend the life of the frame:

Dimensions: 10-1/4" x 3-1/2" x 3/8"

Material: 110,000-psi minimum yield strength, high strength, low alloy steel

Section Modulus: 16.61 cu. in.

Resistance to Bending Moment (RBM): 1,827,045 in. lbs.

If larger rails are provided, the maximum height of each frame rail shall not exceed the 10-1/4" dimension by more than 1/2" in order to ensure the lowest possible body height for ease of access as well as the lowest possible vehicle center of gravity for maximum stability.

There shall be a minimum of six (6) cross-members joining the two (2) frame rails in order to make the frame rigid and hold the rails/liners in alignment. The cross-members shall be a combination of a formed steel C-channel design along with heavy duty steel fabricated designs as required for the exact chassis configuration. The cross-members shall be attached to the frame rails with not less than four (4) bolts at each end arranged in a bolt pattern to adequately distribute the cross-member load into the rail/liner and minimize stress concentrations.

All frame fasteners shall be high-strength Grade 8, flanged-head threaded bolts and nuts for frame strength, durability, and ease of repair. The nuts shall be Stover locknuts to help prevent loosening. The frame fasteners shall be tightened to the proper torque at the time of assembly.

The frame rails shall be hot-dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

The frame cross-members and frame mounted components (suspensions, axles, air tanks, battery boxes, fuel tank, etc.) shall be painted black.

The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

Coated Fasteners

The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

AXLE OPTIONS

Front Axle

The vehicle shall utilize an Meritor FL-943, 5" drop beam front axle with a rated capacity of 21,000 lbs. It shall have "easy steer" knuckle pin bushings and 68.83" kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.

The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life.

The front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum three (3) leaf, progressive rate with a capacity of 21,000 lbs. at the ground. The springs shall have Berlin style eyes and rubber bushings on each end with an additional standard wrap at the front eye. Tapered leaf springs provide a 20% ride improvement over standard straight spring systems.

The vehicle shall be equipped with a Sheppard model M-110 integral power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 21,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

In order to achieve maximum vehicle road performance and to promote long tire life, there shall be a wheel alignment. The alignment shall conform to the manufacturer's internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery.

Shock Absorbers Front

Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three way adjustable.

The shocks shall be covered by the manufacturer's standard warranty.

Front Axle Sight Glass

The front axle shall have a Stemco sight glass on the hubs to check the lubricant level of the axle spindles.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The inboard wheel seals shall be Chicago Rawhide brand (or equivalent).

Rear Axle

The vehicle shall be equipped with an Meritor RS-24-160 single rear axle with single-reduction hypoid gearing and a manufacturer's rated capacity of 24,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals. The rear axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels to improve wheel centering and extend tire life.

SUSPENSIONS

Rear Suspension

The rear suspension shall be a pair of linear-rate leaf springs with auxiliary "helper" leaf springs. The variable-rate springs with auxiliary springs ensure that the vehicle rides and handles smoothly under both loaded and unloaded conditions.

The suspension system shall have maintenance free rubber bushings at the forward end of the springs. The spring bushings shall have bar pin style mounting that allows for 4-wheel alignment.

The suspension shall be rated for the maximum axle capacity.

WHEEL OPTIONS

Valve Stem Extensions

Each inside rear wheel on the rear axle shall have valve extensions.

Front Wheels

The vehicle shall have two (2) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

The wheel shall have a load rating of up to 11,000 lbs. each (up to 11,400 lb rating available with speed limited to 60 MPH)

Rear Wheels

The vehicle shall have four (4) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

Wheel Trim Package

The front and rear wheels shall have (chrome plated plastic if applicable) lug nut covers.

TIRE OPTIONS

Front Tires

The front tires shall be two (2) Michelin 425/65R 22.5 tubeless type 20 PR radial tires with XZY3 Wide Base aggressive tread.

The tires with wheels shall have the following weight capacity and speed rating:

Max front rating 22,800 @ 65 mph.

Max front rating with Alco aluminum wheels - 24,400 @ 65 MPH (intermittent fire service rating if GAW is over 22,800)

The wheels and tires shall conform to the Tire and Rim Association requirements.

Rear Tires

The rear tires shall be Michelin 12R22.5 tubeless type radial tires with XDN2 all weather tread.

The tires with wheels shall have the following weight capacity:

27,000 lbs. (dual) @ 75 MPH

The wheels and tires shall conform to the Tire and Rim Association requirements.

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

Real Wheel Part number RWC1234 was superseded by RWC1235 as of June 2015

BRAKE SYSTEMS

Front Brakes

The front axle shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The brakes shall be covered by the manufacturer's standard warranty which is two years, unlimited mileage and parts only.

Rear Brakes

The rear axle shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes with a maximum rated capacity of 27,000 lbs.

The brakes shall be covered by the manufacturer's standard warranty which is two years, unlimited mileage and parts only.

Brake System

The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.

A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.

The braking system shall be provided with a minimum of three (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

Tank Capacities in Cubic Inches:

Wet	Front	Rear	Total
1,738	1,738	1,738	5,214

Spring-actuated emergency/parking brakes shall be installed on the rear axle.

A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lock-up and instantly modulate (or pump) the brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual-circuit design configured in a diagonal pattern. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver's instrument panel shall signal a malfunction.

The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.

To improve maintenance troubleshooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.

A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

Park Brake Release

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the center dash within easy reach of the driver.

Electronic Stability Control

The apparatus shall be equipped with a G4 4S4M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing.

RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded.

Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces.

The system provides control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer. To further improve vehicle drive characteristics, the unit shall be fitted with Automatic Traction Control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra solenoid valve shall be added to the ABS system. The system shall control the engine and brakes to improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive.

Brake System Fittings

All air brake system hoses on the chassis shall be connected by use of compression fittings. Includes connections on accessories including air suspension seats, pump shift, air inlet/outlets and supply side of plumbing blow-out lines (if equipped).

AIR SYSTEM OPTIONS

Air Dryer

The chassis air system shall be equipped with a Bendix-Westinghouse AD-9 air dryer to remove moisture from the air in order to help prevent the air lines from freezing in cold weather and prolong the life of the braking system components.

Air Compressor

A Gast 110 volt air compressor model 3HBB-32-M300AX shall be provided. The compressor shall be connected to the chassis air system to maintain the air pressure in the air brake system while the vehicle is not in use. A pressure switch shall automatically start the compressor when the pressure drops, and shall shut it down when the pressure is restored.

Current rating: 6.6A

Air Inlet

A 1/4" brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

Isolated Air Reservoir

The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve.

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Specified options shall be plumbed to the isolated air tank.

Auxiliary Air Tank Plumbing

The auxiliary air tank shall be plumbed to the following optional accessories, if equipped: Chassis air horns, brake system air outlet, air reel, light tower, air primer, air operated devices and or customer/dealer installed pneumatic add-on(s).

Air Lines

Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.

Air Horns

Dual Hadley e-tone air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the air horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

ENGINES & TRANSMISSIONS

Transmission Programming

The transmission shall be re-programmed so that when "D" is selected, the transmission will shift from 1st through 4th gear and pressing "MODE" will allow the transmission to shift up to 5th gear. Downshift pre-select will remain as standard (4th gear).

Transmission Selector

A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a "Do Not Shift" light and a "Service" indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.

Transmission Fluid

The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic.

Vehicle Speed

The maximum speed shall be electronic limited to 68 MPH as required by NFPA 1901.

Note: Maximum speed may be set at 65 MPH due to tire rating.

Engine/Transmission Package

Engine

A Cummins X15 Next Generation 6 cylinder diesel engine with 565 horsepower and 1850 foot-lbs of peak torque shall power the chassis. Emissions shall be compliant with EPA 2027 ultra-clean regulations using selective catalyst reductant and diesel particulate filter technology.

The engine shall include Acumen telematics to improve diagnostic troubleshooting.

The engine air filter intake shall be located above the radiator to minimize the risk of water ingestion during high water. The air filter shall use a replaceable dry type element designed to prevent dust and debris from being ingested into the engine.

A multilayered screen trap shall protect the air filter from embers and water.

A restriction indicator light shall activate when the air cleaner element requires replacement.

The engine exhaust piping shall be a minimum of 4" diameter welded stainless steel tubing.

Note: Until the 2027 EPA engine integration is finalized, option availability and body design relative to engine and aftertreatment are subject to change. Additional costs associated with the 2027 EPA engine will be passed on to the end user. No exceptions.

Transmission

An Allison model EVS 4000P automatic transmission shall be provided. The transmission shall include electronic controls and be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1900 and automatically shift to neutral upon application of the parking brake.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission.

SECONDARY BRAKING

Jacobs Engine Brake

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.

When the on-off switch is in the "on" position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the "off" position, the engine brake shall immediately release and allow the engine to return to its normal function.

The rear brake lights shall illuminate when the Jacobs engine brake is activated.

Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This feature is designed to increase brake life and aid vehicle braking.

EXHAUST OPTIONS

Exhaust Blanket

The exhaust shall be covered with an insulation blanket specifically designed for high temperature usage. The blanket shall have a silicone impregnated fiberglass sewn outer cover with a stainless steel knitted wire mesh inner liner. The cover shall be retained with stainless steel capstan rivets and stainless steel lacing wire. The blanket shall be a 2-piece design installed from the engine turbo to the DPF and from the DPF to the SCR.

COOLING PACKAGE

Engine Cooling Package

Radiator

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations in compliance with the engine and transmission OEMs and all EPA regulations. The complete cooling system shall be mounted to isolate it from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction caused by temperature variation.

The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to monitor the level of the coolant.

All radiator tubes shall be formed from aluminized steel tubing.

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps.

Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The radiator and charge air cooler shall be removable through the bottom of the chassis.

Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

Fan / Shroud

A 30 inch diameter fan shall be used to move cooling air through the radiator. It shall have eleven (11) blades to minimize noise while providing maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance.

A fan shroud and baffling shall be provided to direct air flow and minimize hot air recirculation during operation. The shroud shall be formed with curved surfaces to improve air flow and cooling.

Fan Clutch

The engine fan shall be mounted to the engine using a variable speed fan clutch. The clutch will vary the fan speed based on the need for engine and transmission cooling. If the fan clutch were to fail it shall fail in the ON condition to ensure continued cooling for the engine.

FUEL SYSTEMS

Fuel System

One (1) 50 gallon fuel tank shall be provided. The tank shall be of an all-welded, aluminized-steel construction with anti-surge baffles and shall conform to all applicable Federal Highway Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis.

The fuel tank shall be equipped with a 2" diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901 Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50" NPT drain plug shall be provided at the bottom of the tank.

The tank shall have a minimum useable capacity of 50 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A mechanical fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

Fuel Line

All fuel lines shall be rubber.

Fuel/Water Separator

A Racor fuel/water separator shall be installed in place of the Cummins fuel/water separator with drain. The unit shall utilize a three-step separate process: centrifuge for primary contaminant separation, conical baffles for water coalescing, and a replaceable filter for final particulate removal. The separator shall have a bottom drain for removing contaminants, shall be heated and shall have a rated maximum flow of 3.16 GPM. A Southern Shores FD – Q150123B – 6-9-26

sensor with indicator light and audible alarm shall be provided for the Racor fuel/water separator. The indicator light shall be mounted in the cab visible to the driver with the unit located inside the frame rails (as applicable). The unit will alert the driver of high water content in the separator bowl.

ALTERNATOR

420 Amp Alternator

There shall be a 420 amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville brushless type with integral rectifier and adjustable voltage regulator with an output of 369 amps per NFPA 1901 rating (420 amps per SAE J56).

BATTERIES

Battery System

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided.

Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.

Idle Mitigation System

A battery powered Idle Mitigation System (IMS) shall be installed on the apparatus to provide power for apparatus lighting including warning, work and scene lights. The system shall include remote access to the system via cell based telemetrics.

The IMS controller shall monitor vehicle activity and automatically switch off the chassis engine to reduce idle time. The IMS system shall only activate with the park brake applied and chassis engine / transmission driven options such as water pump, hydraulic generator and aerial are not engaged. When activated, the IMS controller shall switch apparatus DC electrical loads from the chassis starting battery bank to the IMS power module. The IMS will incorporate programming to monitor system voltage and automatically re-start the chassis engine based on the remaining power level of the IMS energy module. The IMS controller shall monitor voltage of both the chassis starting and IMS energy modules and switch the output from the chassis alternator as required to charge both power supplies.

The controller shall allow engine-off operation down to 32 degrees F. When used with optional diesel fired heater the engine-off operation will be down to -10 degrees F.

The system shall include a Lithium-Iron IMS energy module that shall supply 2kWh of usable energy. The IMS energy module shall be provided in addition to a separate bank of batteries used for starting the engine.

The system shall include an in-cab interface display. The display shall provide access to user settings and incorporate user-friendly graphic indication of the system status.

The IMS system shall be equipped with telemetrics allowing access to idle mitigation data via a secure web-based portal. The system shall be cellular based and include 3 years of service.

CHASSIS OPTIONS

Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1810 series universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Front Tow Eyes

Two (2) 3/4" thick heavy duty steel tow eyes shall be securely attached to the chassis frame rails at the front of the apparatus. They shall be mounted down below the bumper / cab.

Tow eyes will be integral when used with a drop style frame extension.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.

DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.

The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.

A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.

The tank shall be located left side below rear of cab.

DEF Tank Access

The DEF tank located under the driver side rear of the cab shall not be provided with an access door. The tank shall be accessed by tilting the cab only.

Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines.

CAB MODEL

Cab Typhoon Long

The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety.

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The cab shall be constructed from 3/16" (0.188") 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable.

The inner structure shall be designed to create an interlocking internal "roll-cage" effect by welding two (2) 3" x 3" x 0.188" wall-thickness 6063-T5 aluminum upright extrusions between the 3" x 3" x 0.375" wall-thickness 6061-T6 roof crossbeam and the 2.25" x 3" x 0.435" wall-thickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire.

The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3" x 1.5" .375 thick C-channel extrusion across the front, with 3/4" x 2-3/4" (.75" x 2.75") full-width crossmember tubes spaced at critical points between the front and rear of the cab.

The cab floor shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate welded to the subframe structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be constructed from 3/16" (0.188") 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The cab roof perimeter shall be constructed from 4" x 6-5/8" (4" x 6.625") 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure.

The cab rear skin shall be constructed from 3/16" (0.188") 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.

The left-hand and right-hand cab side skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement.

The cab front skins shall be constructed from 3/16" (0.188") 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9" outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact.

Cab Exterior

The exterior of the cab shall be 94" wide x 139.5" long to allow sufficient room in the occupant compartment for up to ten (10) fire fighters. The cab roof shall be approximately 101" above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 67.5".

Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of 3/16" (0.188") composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris.

A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab.

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4" (0.25") thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,561-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver's seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

Windshield Wipers

Two (2) opposed radial style windshield wipers with two (2) separate electric motors shall be provided for positive operation. The wipers shall be tested beyond the minimum SAE requirement to a total of 3.3 million cycles. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 20", and the blade length approximately 21". Each arm shall have a 90 degree sweep for full coverage of the windshield. The wipers shall be synchronized so as to wipe each windshield simultaneously.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab,

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one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.

The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A "cab ajar" indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

Cab Interior

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23" from the floor at each side and 27" in the center section. The engine cover shall not exceed 41" in width at its widest point.

The engine cover insulation shall consist of 1/2" closed cell elastomeric compound foam with aluminum foil faced fiberglass fabric manufactured to specifically fit the engine cover. All edges and seams shall be sealed using aluminum foil faced fiberglass tape. The insulation shall meet or exceed DOT standard FMVSS 302-1 and V-0 (UI subject 94 Test).

All cab floors shall be covered with a black rubber floor mat that provides an aggressive slip-resistant surface in accordance with current NFPA 1901.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.

A minimum of 57.25" of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25" floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36" of seated headroom at the "H" point shall be provided over each fenderwell.

The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.

The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25" front to rear for the driver and no less than 24" side to side by up to 27" front to rear for the officer to provide adequate legroom.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4" (0.25") foam padding. The padding board shall be backed with 1/4" (0.25") thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18" padded steering wheel with a center horn button shall be provided.

The driver and officer seat risers shall be welded to the main cab floor structure. Depending on the make and model of the seats, a storage compartment with a hinged door shall be provided in the risers.

The lower front cab steps shall be a minimum of 11.5" deep x 24" wide. The lower rear cab steps shall be a minimum 16" deep x 21" wide. The first step at the front and rear cab doors shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The front and rear steps shall incorporate full width intermediate steps for easy access to the cab interior. The intermediate step at the front doors shall be approximately 6" deep (minimum). The intermediate step at the rear doors shall be approximately 10.75" deep (minimum). The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right side windshield post for additional handholds.

Cab Doors

Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16" (0.188") aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall be approximately 36" wide x 72.5" high, and the rear cab door openings shall be approximately 33.75" wide x 72.5" high. The front doors shall open approximately 85 degrees, and the rear doors shall open approximately 80 degrees.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8" (0.375") diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.

The front door windows shall provide a minimum viewing area of 518 sq. in. each. The rear door windows shall provide a minimum viewing area of 554 sq. in. each. All windows shall have 75% light transmittance automotive safety tint.

The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free material and have a black finish. Each exterior door handle shall have an integral keyed lock.

Recessed paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901. The rear cab door handles shall have a vertical orientation making them easily accessible from forward or rearward outboard seating positions. Each cab door shall have a manually operated door lock actuated from the interior of each respective door.

Cab Controls

Cab controls shall be located on the driver side dashboard where they are clearly visible and easily reachable. Chassis operation switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Master battery / ignition switch (rocker with red guard) (diesel units only)
- Engine start switch (rocker) (diesel units only)
- Master power switch (rocker) (EV only)
- Run switch (rocker) (EV only)
- Marker light/headlight control switch (rocker)
- Panel light dimmer switch (rocker)

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

- Self-canceling turn signal control with indicators
- Windshield wiper switch with variable speed and washer controls (if not equipped with steering wheel switch pods)
- Parking brake control with red indicator light on dash

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

Electrical System

The cab and chassis system shall have designated electrical distribution areas. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An access cover shall be provided for maintenance access to the electrical distribution area. Circuit protection shall be provided by fuses, thermal reset breakers and / or solid state controls.

A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer-installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3" on the outer surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

Headlight Bezels

Four (4) dual rectangular chrome plated bezels shall be installed on the front of the cab, located two (2) each side of the grill. One set of the bezels shall be for headlights and the other for turn signals and / or warning lights.

Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 13,776 ft-lbs of force **exceeding** testing requirements.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.

Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.

Cab testing shall be completed using 23,561 lbs of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.

Additional cab testing shall be conducted using 117,336 lbs of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.

Frontal Impact per SAE J2420.

Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 34,844 ft-lbs of force **exceeding** testing requirements.

Additional cab testing shall be conducted using 65,891 ft-lbs of force **exceeding** testing requirements by **over two (2) times**.

The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS**.

A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.

For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

CAB ROOF TYPE

Raised Roof

The rear portion of the cab roof shall be raised 12". This will provide at least 5' 7" standing room. The front of the vista hood shall be sloped at 45 degrees from the vertical. The slope shall begin slightly in front of the centerline of the front axle to leave room for warning lights and air conditioning in front of the vista. The main roof extrusion shall extend up into the vista to strengthen the roof perimeter. Windows shall be provided on front, side, and rear unless otherwise specified.

The rear door shall have an 85" vertical dimension for improved ingress/egress characteristics.

Raised Roof Front Windows

The front windows of the raised roof portion of the cab shall be deleted.

Raised Roof Side Windows

The side windows of the raised roof portion of the cab ahead of the rear doors shall be deleted.

Raised Roof Rear Windows

The rear windows of the raised roof portion of the cab shall be deleted.

CAB BADGE PACKAGE

Logo Package

The apparatus shall have manufacturer logos provided on the cab and body as applicable.

CAB DOOR OPTIONS

Rear Cab Door Position

The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening.

Rear door position to the 58" or (medium cab).

Cab Door Locks

The cab shall have 1250 keyed door locks provided on the exterior entry doors to secure the apparatus.

Cab Door Panels

The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall be split just below the handrail and incorporate an easily removable panel for access to the latching mechanism and window regulator for maintenance or service.

Cab Door Anodize Aluminum Trim

Each cab door shall have a anodize aluminum trim on the trailing edge of the door opening. Rear doors shall have full vertical height trim; front cab doors shall be 50" tall on rear vertical edge above floor level.

Cab Door Locks

Each cab door shall have a manually operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a keyed lock integrated with the cab door handle.

Cab Compartment Door Trim

A anodize aluminum trim shall be located at the bottom edge of the cab exterior compartment openings. The trim shall provide added protection of the painted surface of the cab when equipment is placed or removed from the compartments.

Cab Front Door Windows

Full roll-down windows shall be provided for the front cab doors with power operated heavy duty regulators. The regulators shall have worm gear drive cable operation for positive movement and long life. Scissors or gear-and-sector drives are not acceptable. Window switches shall be located at the center dash for access by the driver or officer.

Cab Rear Door Windows

Full roll-down windows shall be provided for the rear crew doors with power operated heavy duty regulators. The regulators shall have worm gear drive cable operation for positive movement and long life. Scissors or gear-and-sector drives are not acceptable. Window switches shall be located on each door with additional switches accessible by driver.

Cab Door Style

The cab doors shall extend down to cover lower step well.

Door Mounted Warning Lights

Four (4) Whelen model 3SA00FAR 3" circular amber LED warning lights shall be provided. The lights shall be located on each cab door in the outboard position. Each light shall be activated by the cab door ajar circuit.

Cab Door Reflective Material

Reflective Diamond Grade material striping shall be provided approximately 7.5" high on the lower cab door panels of an extended (non-barrier) door. The stripes shall run from the top outer corner to the bottom inside corner of the lower door area, forming a "A" shape when viewed from the rear. The reflective material shall meet NFPA 1901 requirements.

Door Handles

The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall have a chrome plated zinc die-cast base with corrosion free glass reinforced nylon pull handle with a black finish. The handles shall have clearance for a gloved hand.

Each exterior door handle shall have an integral keyed lock.

CAB STEP OPTIONS

Cab Steps

The lower cab steps shall extend 3.5" past the side of the cab to provide increased surface area.

MIRRORS

10in Convex Mirror

Retrac stainless steel 10" 3-Arm Convex mirror.

(3) piece adjustable telescoping arm assembly (model 604671) and a 10" stainless steel center mounted convex head (model 604953). Mirror shall be mounted horizontally above the officer's position to permit rapid viewing of the rear cab area.

Cab Mirrors

A pair of Retractable Aerodynamic model 612010 mirrors shall be provided on the cab. The west coast style mirrors shall have chrome housings with flat and convex sections. Both the upper and lower mirror sections shall be remote controlled and heated. The mirror heads shall include amber LED marker lights.

MISC EXTERIOR CAB OPTIONS

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the driver's side of the cab.

Window dimensions shall be as follows:

- 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the officer's side of the cab.

Window dimensions shall be as follows:

- 58" - 80" C/A cab (medium - extended): 26.69"W x 24.5"H

Painted Drip Rails

All exterior drip rails over cabinets, etc including vertical drip rails ahead of front cab doors to be painted job color (two tone as applicable).

Front Mud Flaps

Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.

Handrails

Cab door assist handrails shall consist of two (2) 1.25" diameter x 18" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety.

Handrails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Knurled Cab Handrail Upgrade [Qty: 4]

Hansen red LED lighted knurled cab door assist handrail shall be provided. The handrail shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Handrail lighting shall be wired through clearance / headlight switch and only activate when park brake is set.

Rear Cab Wall Construction

The rear cab wall shall be constructed using formed 3/16" (.188") aluminum smooth plate interlocking in aluminum extrusions. A rear cab wall overlay constructed of 3/32" (.090") diamond plate shall be provided over the smooth plate.

Cab Wheel Well

The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets.

Glass Tint

The rear of the cab shall be equipped with dark tint glass. The glass shall have 20% light transmittance (+/- 10%). The dark tint shall be provided for the following windows (as equipped):

- Window on cab sides between front and rear door
- Rear door glass
- Rear cab wall glass
- Vista roof glass

Receptacle Mounting Plate

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and the air inlet (if applicable). The plate shall be fabricated from 3/16" aluminum smooth plate painted job color (two-tone if applicable) and be removable for service access to the receptacle(s) and indicator.

DEF Tank Access

A bolt in plate shall be provided on the side of the cab for accessing the Diesel Exhaust Fluid tank fill. The plate shall match the step area.

HVAC

Air Conditioning

An overhead air-conditioner / heater system with a roof mounted condenser shall be supplied.

The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The unit shall provide fourteen (14) comfort discharge louvers, eight (8) to the back area of the cab, six (6) to the front area of the cab including one (1) each side outboard in the forward overhead console. These louvers will be used for both AC and heated air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.

The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery. For improved corrosion resistance the evaporator shall have a hydrophilic blue fin coating.

The air-distribution system shall use electric actuators and allow blended airflow to both the comfort air vents and defrost vents. The system shall allow for independently controlled air speed for the front and rear blowers. A separate switch shall be provided for the rear crew to control the rear fan speed.

The condenser shall be roof mounted and have a minimum capacity of 65,000 BTUs and shall include a receiver drier.

Performance Data: (Unit only, no ducting or louvers)

- AC BTU: 55,000
- Heat BTU: 65,000
- CFM: 1300 @ 13.8V (All blowers)

The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu. in. per revolution.

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

SEATS

Cab Seats

All cab seats shall be Bostrom brand.

Seat, Driver

One (1) H. O. Bostrom Sierra EX8/ABTS seat with high back styling shall be provided for the driver's position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Power fore/aft with 8" adjustment
- Power height with 2" adjustment
- Power front seat tilt
- Power rear seat tilt
- Power back recline
- Built in lumbar support

Seat, Rear Facing

One (1) Bostrom Tanker 450 ABTS seat with high back SCBA storage shall be provided in the rear facing position over the driver side wheel well.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Removable "Store-All" side cushions
- Auto-pivot and return headrest to open for improved exit with SCBA
- 12.5" wide SCBA cavity to store leading SCBA brands
- Shoulder strap holder
- Replaceable seat, side and headrest cushions

Seat, Rear Facing

One (1) Bostrom Tanker 450 ABTS seat with high back SCBA storage shall be provided in the rear facing position over the officer side wheel well.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Removable "Store-All" side cushions
- Auto-pivot and return headrest to open for improved exit with SCBA

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

- 12.5" wide SCBA cavity to store leading SCBA brands
- Shoulder strap holder
- Replaceable seat, side and headrest cushions

Seat, Officer

One (1) Bostrom Tanker 450 ABTS seat with high back SCBA storage shall be provided in the officer position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Removable "Store-All" side cushions
- Auto-pivot and return headrest to open for improved exit with SCBA
- 12.5" wide SCBA cavity to store leading SCBA brands
- Shoulder strap holder
- Replaceable seat, side and headrest cushions

Seat Cover Material

All seats shall have vinyl seat cover material.

Seat Fabric Color

All seats shall be black in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of five (5) personnel shall be provided.

Seat, Rear Wall

One (1) Bostrom Tanker 400 ABTS flip-up seat with high back SCBA storage shall be provided. The seat shall be located on the rear wall on the centered position on a seat riser.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12" of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

- Seat bottom folds up automatically when not in use to provide increased room in the rear of the cab

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

- Removable "Store-All" side cushions
- Auto-pivot and return headrest to open for improved exit with SCBA
- 12.5" wide SCBA cavity to store leading SCBA Brands
- Shoulder strap holder
- Replaceable seat, side and headrest cushions

SCBA Bracket SmartDock

A IMMI SmartDock Gen2 SCBA storage bracket shall be provided. The SmartDock is a strap-free docking station that offers single-motion SCBA insertion and hands-free release when the firefighter stands up to exit the seat. SmartDock has undergone extensive testing to ensure that it meets or exceeds industry standards. When evaluated to the NFPA 1901 Standard for Automotive Fire Apparatus, SmartDock met requirements for retaining both the cylinder and the pack in dynamic testing.

Location: officer's seat, rear facing driver's side, rear facing officer's side, center rear wall.

MEDICAL CABINETS

Reverse Hinge

The driver and officer side ALS compartment door shall be hinged to the back side of the compartment opening. The doors shall open approximately 110 degrees.

Exterior Cab Compartment

The compartments to the rear sides of the cab are to be designed with a pass-through that extends fully from the driver side compartment to the officer side compartment. The pass-through will be constructed out of 1/8" aluminum and will be incorporated into the design of any other options along the rear wall of the cab as necessary to allow the pass-through to fully extend to the opposite side of the cab. The pass-through opening shall be a minimum of 11" high and 11" wide on both the driver and officer side of the truck.

Broom Handle Storage

Two (2) tubes shall be provided on the rear wall of the cab transverse compartment for storage of broom handles. Tubes shall be vertically stacked and extend full width of transverse compartment floor.

Cab Compartment Recess

Officer's side rear exterior cab compartment to have entire floor recessed 5".

Cab Compartment Recess

Drivers's side rear exterior cab compartment to have entire floor recessed 5".

Tri-Mark Latch IPOS

A Tri-Mark door latch shall be installed on a box pan compartment door in place of standard.

A Tri-Mark door latch shall be located on the following door(s): driver side ALS door, officer side ALS door

Exterior Cab Compartment

There shall be a storage compartment provided each side at the lower rear side of the cab with exterior access. The compartment shall have a door opening of approximately 73" high x 9" wide and be constructed of 1/8" aluminum plate.

The cabinet dimensions shall be based on cab style:

94" Wide Typhoon: 74.5" high on flat roof applications, will be as tall as applicable for vista roof applications as side options dictate x 11" wide x 14" deep min. or as specified (above cab floor) interior. 14" deep (below floor). (Lower officer side floor notched for front suction if equipped.)

100" Wide Cyclone: 74.5" high on flat roof applications, will be as tall as applicable for vista roof applications as side options dictate x 11" wide x 17" deep min. or as specified (above cab floor) interior. 17" deep (below floor). (Lower officer side floor notched for front suction if equipped.)

A single door shall be provided on the compartment. The door shall be constructed using smooth aluminum plate with one (1) quarter turn stainless steel d-ring(s). Latching shall be provided as design requires.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the door frame.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

Interior Handrails

Two (2) handrails shall be provided, one (1) each side, on the interior rear cab wall. The handrails shall be vertically mounted just inside the rear doors and be approximately 18" long or 36" if vista style cab (as applicable). Each handrail shall consist of one (1) 1-1/4" OD 6063T5 anodized aluminum tube mounted between chrome stanchions. The handrail shall be machine extruded with an integral ribbed surface to assure a good grip for personnel safety.

MISC INTERIOR CAB OPTIONS

Cab Interior Padding Color

Cab interior padding to be gray color. Includes ceiling, side and rear walls as applicable.

Sun Visors

Padded sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.

Cab Rollover Protection - Seat Belt Pretensioners [Qty: 5]

RollTek Integrated Seat Belt Pretensioners (ISB) shall be installed in the apparatus cab. The special seat belt buckles shall be designed to receive a signal from the Integrated Roll Sensor during a roll for the pretensioners on the buckles to tighten the seat belts to the occupant, better positioning the occupant in the seats.

Cab Rollover Protection - Air Bag Sensor Module

A RollTek rollover occupant protection system shall be installed in the apparatus cab. The system shall include an Integrated Roll Sensor, Integrated Head Curtains and Integrated Seat Belt pretensioners.

The Integrated Roll Sensor (IRS) shall be a microprocessor-controlled solid-state sensing device that utilizes vehicle-specific calibrations to detect rollovers. The IRS shall be equipped with up to sixteen (16) pyrotechnic loops for connection to the protective countermeasures (Integrated Head Curtains and Integrated Seat Belt pretensioners).

The IRS shall continually monitor the truck's acceleration and angle, and upon detection of an imminent roll-over, shall activate protective countermeasures in a pre-programmed sequence. The entire process from activation to deployment shall take less than ¼ of a second (.234).

Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.

The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Front Occupant Protection

A 4Front occupant protection system shall be installed in the apparatus cab. The system shall inflate three (3) air bags in the following locations:

- Steering wheel air bag to protect the head and neck of the driver
- Knee bolster air bag to protect the driver's legs
- Knee bolster air bag to protect the officer's legs

The air bags shall use a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

The system shall be connected to the crash detection sensor that will also activate the driver and first officer Integrated Belt Pretensioners if it detects a frontal crash.

Cup Holder / Storage Tray Enlarged

An enlarged cup holder and tray assembly shall be provided on the cab engine cover between the driver and officer. The tray shall be approximately 19" wide x 12" long x 1.5" tall and constructed from .125" aluminum plate. The top edge of the tray sides shall have a .5" lip and the front corners of the tray shall be tapered for dash access. The two (2) cup holders shall be constructed from 3.5" diameter pipe approximately 2.5" tall and be located one each side at the rear corners of the tray. The assembly shall be painted to match the cab interior color.

Cab Rollover Protection - Side Air Bags [Qty: 4]

Side Rollover Airbags (SRA) shall be installed in the apparatus cab. The pillow-shaped side air bags shall be attached to the seats. The air bags shall be optimally placed to deploy across the window and side of the vehicle interior to protect the occupants heads during impact. The air bags shall use a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

Rear Facing Storage

Recessed storage areas shall be provided in the rear face of the cab wheel well risers.

Overhead Console

An overhead console shall be provided in the front of the cab for the driver and officer. The areas in front of the driver and officer shall be removable panels that can be used for switches and other electrical items. The entire overhead console shall be hinged for service access.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The center of the overhead console shall have a lowered area for mounting of up to three (3) electrical components like siren heads, directional bar controllers, etc.

The overhead console shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.

Air Horn Lanyard

There shall be a "Y" style lanyard mounted in the center of the cab with a "Heavy-Duty" (keyring) attachment that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch. Aircraft style cable (1/8" wire cable covered with clear plastic/nylon tubing) shall be used.

Cab Dash - Low Profile Severe Duty

The driver side and center dash shall be constructed from cast aluminum for durability and long life.

The driver side cast aluminum dash shall enclose the instrument cluster.

The center dash area shall be a low profile design to provide optimal forward visibility. The driver and officer sides shall be angled for ergonomic access and designed for either a color display or switches. Access panels shall be provided on the top, front and officer side for easy service access.

The officer side dash shall be low profile and constructed from .125" smooth aluminum plate. A service access panel shall be provided in the top surface.

The driver, center and officer side dash shall be painted to match the cab interior.

The lower kick panels below the dash to be constructed from .125 aluminum plate painted to match the cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

Cab Insulation Package

The cab shall be insulated to mitigate noise and ensure maximum cooling/heating capacity. The insulation package shall include 1" Polyester foam with Mylar facing for the front wall, rear wall, side walls, and ceiling, Reflectex (or equal) inside each cab door and 1" closed cell foam insulation below the front and rear facing seat risers.

CAB ELECTRICAL OPTIONS

Cab Dome Lights

Four (4) ceiling mounted dome light assemblies shall be provided.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

Each light shall consist of a three-position assembly mounted rocker switch, LED (light emitting diode) 4" grommet mount white dome light, LED (light emitting diode) 4" grommet mount red dome light, and a plastic housing.

The white light activates with appropriate cab door and light assembly mounted rocker switch, the red light activates with assembly mounted rocker switch only.

Two (2) lights shall be located in both the front and rear of the cab.

Push-Button Switch

A heavy duty metal push-button switch shall be installed on the officer's side switch panel to operate the Q2B siren brake.

Auto-Eject Inlet Receptacle

The inlet receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside driver's door next to handrail and the cover color shall be Red.

ATC Override

An Automatic Traction Control (ATC) override switch shall be provided. The switch shall be located within reach of the driver and allow for momentary disabling of the ATC system due to mud or snow conditions.

Push-Button Switch

A heavy duty metal push-button switch shall be installed on the officer's side switch panel to operate the siren.

Push-Button Switch

A heavy duty metal push-button switch shall be installed on the officer's side switch panel to operate the air horns.

Radio Speakers Additional Pair

An additional pair of radio speakers shall be supplied.

Rear speakers mounted in rear headliner. Speakers shall be 5-1/4" diameter.

Headlights

The front of the cab shall have four (4) headlights. The headlights shall be mounted on the front of the cab in the lower position.

12 Volt Outlet

A plug-in type receptacle for handheld spotlights, cell phones, chargers, etc. shall be installed officer side dash. The receptacle shall be wired battery hot.

Antenna Base

There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located officer side forward with coaxial cable terminating behind officer seat.

Battery Charger Location

The battery charger shall be located behind driver's seat.

Air Compressor Location

The air compressor shall be located behind officer's seat.

Officer Speedometer

A speedometer shall be provided in the officer side multiplex display in the cab.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

Cab Headlights

FireTech model FT-4x6-4KIT LED headlights shall be provided. The headlights shall include low beam, high beam, elliptical beam and an integrated halo ring park lamp. When not equipped with separate daytime running lights, the low beam headlights shall activate with the release of the parking brake for additional vehicle conspicuity and safety.

Riser Height Compartment Lighting [Qty: 2]

One (1) EON LED light shall be provided to illuminate the interior of the riser height compartment(s) at the lower rear side of the cab. The light shall be wired through the compartment door switch.

Battery Charger

An Kussmaul LPC 80 battery charger with remote mounted LED display shall be installed.

A fully automatic charging system shall be installed on the apparatus. The system shall have a 120 volt, 60 hertz, 13 amp AC input with an output of 80 amps DC. The output voltage shall be controlled by the Idle Mitigation System controller to either charge the chassis starting batteries at approximately 13.5 volts and the lithium IMS battery at 14.2 volts.

The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse.

The system shall include a remote charging status indicator panel. The panel shall consist of a bar graph to provide a visual signal if battery voltage is good or drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status.

Cab Door Step Area Lighting

There shall be eight (8) clear TecNiq model D07 LED lights provided to illuminate the cab step well areas. Two (2) lights shall be located at each door area, one (1) above each step. The lights shall have polished stainless steel housings. The lights shall be activated by the cab door ajar circuit.

Cab Turn Signals

A pair of TecNiq LED (Light Emitting Diode) turn signal lights with clear lens shall be installed on the front of the cab. The strip type lights shall be 1.25" high x 15" long and be mounted in a polished cast aluminum housing between the quad bezels.

Radio

The apparatus cab shall be equipped with a Aptiv model PP105221 heavy duty AM/FM/BT/Weather band stereo receiver. The unit shall include integral Bluetooth, front auxiliary input and front USB port.

Two (2) 5-1/4" radio speakers and antenna shall be supplied and mounted in the padding adjacent to driver and officer seats. A Bluetooth microphone PP604240 shall be installed near the driver.

The receiver unit shall be suppressed from engine noise to provide clear sound through the speakers.

Location: center overhead.

Dual USB Charging Receptacle in Cab

A dual port USB charger receptacle shall be provided in the cab. Includes (1) USB-C and (1) USB-A socket for charging cell phones and other portable electronics.

The receptacle shall be wired battery hot and located center of dash, officer side dash

Digital Dash

A digital LED cab dash display shall be provided for the driver. The display shall include gauges, telltales, warning messages and advanced diagnostic capabilities into a single 12.3 inch digital display. The display shall communicate to other chassis components via the vehicle J1939 databus and provide plain text messages for engine fault codes as required by the EPA for 2027.

Gauges represented in the display shall include:

- Speedometer with odometer
- Tachometer
- Engine water temperature gauge with warning light and buzzer
- Engine oil pressure gauge with warning light and buzzer
- Transmission oil temperature gauge
- Air brake system pressure (front and rear) with low air alarm
- Fuel level gauge with low fuel indicator light
- DEF level gauge
- Voltmeter
- Engine hour meter

Units of measure for the display shall be selectable between English and Metric.

BODY COMPT LEFT SIDE

Driver Side Assembly

The driver side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The driver side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The driver side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Driver Side Compartments

The three (3) driver side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 30" wide x 68" high x 26" deep in the lower 30" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 21.5 cu. ft. of combined storage space. The door opening shall be approximately 30" wide x 68" high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56" wide x 34" high x 12" deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high.

There shall be one (1) compartment located behind of the rear wheels. This compartment shall be approximately 50" wide x 68" high x 26" deep in the lower 30" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 35.8 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 68" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate.

BODY COMPT RIGHT SIDE

Officer Side Assembly

The officer side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The officer side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16" (0.188") wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The officer side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Officer Side Compartments

The three (3) officer side compartments shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheels. This compartment shall be approximately 30" wide x 68" high x 26" deep in the lower 30" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 21.5 cu. ft. of combined storage space. The door opening shall be approximately 30" wide x 68" high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56" wide x 34" high x 12" deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56" wide x 34" high.

There shall be one (1) compartment located behind of the rear wheels. This compartment shall be approximately 50" wide x 68" high x 26" deep in the lower 30" high section and 12" deep in the upper 38" high section. The compartment shall contain approximately 35.8 cu. ft. of combined storage space. The door opening shall be approximately 50" wide x 68" high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8" (.125") aluminum treadplate.

BODY COMPT REAR

Rear Body Compartment

The rear body shall be constructed entirely of aluminum extrusions and interlocking aluminum plates and includes a lower full height center rear compartment.

The rear body frame shall be 6063-T5 1.5" x 4" and 1.5" x 3" aluminum extrusions with a 3/16" (0.188") wall thickness and 3/16" (0.188") outside corner radius and 1/8" (0.125") aluminum plate. The rear extrusions shall be welded both internal and external at each joint using an aluminum alloy welding wire.

Rear Body Compartment

The rear compartment shall be constructed from 3003 H14 1/8" (.125") smooth aluminum plate. The compartment shall be modular in design and shall not be a part of the body support structure.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The compartment shall be approximately 38" wide and shall vary in height and depth dependent upon water tank capacity and other options. The door opening shall be approximately 38" wide. This compartment shall be transverse through to the side rear compartments.

The compartment seams shall be sealed using a permanent pliable silicone caulk. Machined louvers shall be provided for adequate ventilation.

Tailboard

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 16" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum treadplate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hosebed area. Each handrail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, and shall be mounted between chrome stanchions.

The handrails shall be located- two (2) handrails, one (1) on each side, appropriately sized handrail mounted vertically on the trailing edge of the body and appropriately sized handrail(s) mounted horizontally below the rear hosebed opening.

DOORS

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L2, R2

Latch

A Tri-Mark door latch shall be installed on a box pan compartment door.

A Tri-Mark door latch shall be located on the following door(s): L1, L2, L3, R1, R2, R3, B1, ground ladder/suction hose tunnel

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pan shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have a gas shock-style hold-open device.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door hinge shall be located with the hinge reversed so the door open opposite of standard at specified location.

The door(s) shall be installed in the following location(s): L1, R1

Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have a dual stage rotary latch with a 750 lb rating to hold the door in the closed position. The latch shall be mounted at the top of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latch. The paddle handle shall be connected to the rotary latch by a 5/32" (.156") diameter rod. Cable actuation shall be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pin shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): B1

Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 3/32" (0.090") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a 1" x 9/16" (1" x 0.43") closed-cell "P" EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle with #459 latch shall be provided on the primary door. The 4-1/2" (4.5") D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have two (2) dual stage rotary latches, each with a 750 lb rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pins shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L3, R3

TRAYS / TOOLBOARDS

Runningboard Suction Tray

A running board suction hose storage tray "floating style" shall be provided and located in the driver side running board, officer side running board.

The tray shall be "floating style" mounted and constructed of 1/8" (.125") aluminum diamond plate (exterior) with a smooth sanded surface interior. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray. The depth of the tray from the top of the running board to the bottom of the tray (excluding the slats) shall be 10". The tray shall have a 3" tapered front corner to protect tray against debris. The tray shall be removable for the running board.

COVERS

Crosslay Cover Hinge

The crosslay cover shall be hinged along the forward edge of the crosslay area.

Crosslay Cover

A crosslay cover shall be provided for the crosslay storage area of the pump module. The crosslay cover shall be provided in compliance with NFPA 1901.

The crosslay cover shall be constructed from 3/16" (.187") aluminum treadplate. The cover shall include a full-length stainless steel 1/4" (0.25") rod piano-type hinge. The cover shall be hinged to open and not interfere with applicable plumbing components on the apparatus.

The crosslay cover shall include applicable grab handle(s) and two (2) thumb latches to secure the cover in the closed position.

Crosslay Cover - Sides

A pair of covers constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the side openings of the apparatus crosslay. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The side flaps shall be secured in place to comply with the latest edition of NFPA 1901

Running Board Tray Securing Strap

A heavy duty black nylon strap with an stainless steel quick-release buckle shall be provided for the running board hose tray(s). The strap shall be attached to the inboard side of the tray as low as practical to allow cinching of strap for securing tray contents and shall not reduce the overall tray capacity.

Location: driver side running board, officer side running board.

Hold Open

Hold open device(s) shall be provided for aluminum crosslay (single or bi-fold) cover.

Hosebed Deflector

The forward area of the hosebed shall have bolt-on diamond plate deflector.

Hose Securing Strap [Qty: 3]

A heavy duty black nylon strap (EACH) with a stainless steel quick release buckle shall be provided for hosebed hose retention. The strap shall be attached by looping beneath hosebed extrusions and beneath respective hose storage areas.

Hosebed Rear Flap

A heavy duty black nylon cargo netting shall be installed over the rear opening of the apparatus hosebed. There shall be airline style quick release buckles at each top corner. The top buckles shall be attached with a horizontal lanyard pull release to allow net to drop down for rapid deployment.

The covers shall be secured in place to comply with the latest edition of NFPA 1901.

PUMP MODULE

Pump Module Width

Pump module shall be 76" wide.

Pump Module

Pump Module Frame

An extruded aluminum pump module shall be provided and located forward of the apparatus body. The pump module shall be constructed entirely of welded aluminum alloy extrusions and interlocking aluminum plates.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The pump module framework shall consist of 1.5" x 3" x .188" wall, 1.5" x 3" x .375" wall with center web and 3" x 3" x .188" wall extrusions.

The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration.

The exterior surface of the pump module framework shall have a sanded finish.

Pump Module Mounting

The pump module shall be attached to the chassis using four (4) center bonded isolation mounts and a steel mounting frame. The isolation mounts shall be 2.75" diameter and mount to the chassis with two (2) 4" x 4" x .312" A36 steel angles.

Pump Access

A pump service access door shall be provided at the front of the pump module. The door shall be secured with two (2) thumb latches. (Access door not provided on fixed cab applications)

Pump Module Running Boards

The pump module shall include a running board on each side. The running boards shall be in accordance with NFPA in both step height and stepping surface. The running boards shall be formed from .125" aluminum treadplate.

Stepping Surface

Each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of .125". Gripping

surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Pump Panel Opening

The panel opening on the pump module shall be 51" wide.

Pump Module Height

The pump module height shall be 80".

PUMP PANELS

Side Mount Pump Panels

The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

Hinged Gauge Panel

The driver side stainless steel single gauge panel shall be positioned where it can be opened downward for access to gauges and other interior pump module mounted items. The gauge panel shall include latches to secure the panel in the closed position. Two (2) cable tethers shall be provided to hold the panel in the open position.

Pump Access Door

The officer side pump module shall include an upper horizontal hinged pump access door.

The door shall be constructed of 14 gauge brushed stainless steel. The compartment door shall be securely attached with a full-length stainless steel piano type hinge with 1/4" pins. The hinge shall be "staked" on every other knuckle to prevent the pin from sliding. The door shall include two (2) push-button style latches to secure the door in the closed position and two (2) hold-open devices to hold the door in the open position.

MISC PUMP PANEL OPTIONS

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

Speaker Grille

Speaker cut out with "E-ONE" stainless steel grille. Located pump operator panel. For dealer install speaker.

Pump Panel

Master Gauge panel to be tilt outward at the top.

Bleeder/Drain

Master drain, bleeders valves pump shift override, and etc shall be recess so floating trays can float up without hitting anything on both sides.

PUMP MODULE OPTIONS

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Module Logos

Logos with the OEM brand name shall be provided and shall be mounted one (1) each side on pump module/pre-connect panels. Logos shall be sized as applicable to available space on panel(s).

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator's panel to operate the air horns.

The switch shall be labeled "Evacuation Alert".

Location: driver side pump panel.

Double Crosslay Hosebed

Two (2) crosslay hosebeds shall be provided on the pump module. The crosslays shall have increased depth to lower the hosebed and increase the carrying capacity. Each of the two (2) crosslay areas shall have a capacity of up to 400' of 2.0" double-jacket fire hose double stacked. The crosslay floor and side walls shall be constructed of 3/16" (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4" (.25") smooth aluminum plate fixed divider with a sanded finish shall be provided to separate the two (2) hose storage areas.

Crosslay(s) Lowered

Crosslays to be lowered per body layout.

Cover Plate

Bolt-on cover plate over pump module IPO storage pan to be embossed diamond plate.

Miscellaneous Storage

Miscellaneous Storage Compartment

An enclosed compartment shall be provided for storage above the pump panel area, located rearward of crosslays as applicable. Includes a vertically hinged stainless steel access door(s) to one or both sides as per sales drawing.

Doors wired to door ajar circuit per NFPA. Includes polyethylene lining and partition(s) for miscellaneous storage as specified.

WATER TANK

780 Gallon Water Tank

A 780 gallon (U.S.) "L" booster tank shall be supplied. The booster tank shall be of a pinned baffle design. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure.

The booster tank top, sides, and bottom shall be constructed of 1/2" (0.50") black UV-stabilized copolymer polypropylene. The copolymer polypropylene tank material shall be welded together utilizing thermoplastic welding technology. A clean hot air temperature controlled process, shall ensure that each weld reaches its plasticized state without cold or hot spots. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The booster tank shall have a fill tower with a rearward hinged lid. The fill tower shall be located in the forward area of the tank and shall assist with tank ventilation. The fill tower shall include a removable 1/4" (0.25") thick polypropylene screen.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. A 3" cleanout plug shall be provided at the bottom of the tank sump.

The booster tank shall include longitudinal and latitudinal baffles. The baffles shall be interlocking and thermo welded to the shell of the tank to minimize water surge during travel and provide enhanced road handling stability. The baffle design shall allow waterflow in accordance with NFPA during tank filling or pump operations.

A 2.5' length of black flex hose shall be installed to the bottom of the tank. This shall direct the draining of overflow water past the rear axle and fuel tank, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. The testing shall include an electronic spark and tank fill test after both the internal and external tank shell welds are completed.

A lifetime manufacturer's limited warranty shall be included.

Tank capacity is 780 US gallon / 649 Imperial gallons / 2952 Liters.

Fill Tower Location

Fill tower(s) shall be located offset to officer side of water tank.

Tank Brand

The water tank and foam tank (if applicable) shall be UPF brand.

WATER TANK OPTIONS

Tank Sleeve

Tank sleeve for up to 3" discharge on rear of body or in hosebed (low hosebed applications) as applicable.

TANK PLUMBING

Tank Fill 2 Akron Valve

One (1) 2" pump-to-tank fill line having a 2" manually operated full flow valve. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Tank To Pump

One (1) manually operated 3" Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank. The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

FOAM TANK

30 Gallon Foam Tank

A 30 gallon (U.S.) foam cell for Class A foam shall be supplied. The foam cell shall be integral to the water tank.

The integral tank top, sides, and bottom shall be constructed of black UV-stabilized copolymer polypropylene. The copolymer polypropylene tank material shall be welded together utilizing thermoplastic welding technology. A clean hot air temperature controlled process, shall ensure that each weld reaches its plasticized state without cold or hot spots. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The foam tank shall have one (1) fill tower with a hinged lid. The foam fill tower shall include a stainless steel butterfly latch to secure the lid in the closed position and a pressure/vacuum vent mounted in the lid. The fill tower shall be located in the forward area of the tank. The fill tower shall include a removable 1/4" (0.25") thick polypropylene screen.

The foam tank shall undergo extensive testing prior to installation in the truck. The testing shall include an electronic spark and tank fill test after both the internal and external tank shell welds are completed.

A lifetime manufacture's limited warranty shall be included. As this vehicle is intended to perform the function of a pumper with foam capability, foam tank capacity of less than 30 gallons shall not be acceptable.

FOAM TANK OPTIONS

Foam Tank Panel Outlet

A quick connect foam outlet shall be provided. The outlet shall be for use with a external foam eductor application. The outlet shall be a 1" male disconnect with a 1" valve. The connection between the foam tank and valve shall be a flex line with a strainer. A check valve shall be provided so water can not enter into the foam tank once the external water line is connected.

A 1" female fitting shall be provided and shipped loose with the apparatus.

The outlet shall be located officer side pump panel

LADDER STORAGE / RACKS

Hard Suction Hose Rack

One (1) hard suction hose storage rack shall be provided on the driver side compartment top.

The storage rack shall be constructed of anodized extruded aluminum and includes two (2) spring-mounted latch handles with stainless steel scuff plates. The scuff plates shall be located on the hose bed side to protect the painted surface.

The storage rack shall be capable of storing one (1) 6" x 10' hard suction hose.

Hard Suction Hose Rack

One (1) hard suction hose storage rack shall be provided on the officer side compartment top.

The storage rack shall be constructed of anodized extruded aluminum and includes two (2) spring-mounted latch handles with stainless steel scuff plates. The scuff plates shall be located on the hose bed side to protect the painted surface.

The storage rack shall be capable of storing one (1) 6" x 10' hard suction hose.

Ladder Storage

Tunnel to be completely enclosed to prevent road grime and dust from entering into the storage tunnel. Enclosure to include ground ladders, attic ladder, pike poles, backboard, stokes basket and other items stored in the tunnel as applicable.

A removable smooth plate flat cover attached to the body shall be used to enclose the tunnel when the tunnel items stored do not protrude outside the tunnel.

If the tunnel items protrude into the pump module area, a removable smooth plate box attached to the body shall be used to completely enclose the tunnel.

Drain holes shall be provided as applicable for water drainage.

Ladder Brand

The ladder brand capable of being carried on the unit shall be Duo-Safety.

Hose Bed Officer Side Tunnel Storage

An officer side vertical storage tunnel shall be provided. The tunnel shall be for use with a low hose bed. Tunnel shall hold: 3-Section 28', 14' roof, 10' attic and (2) pike poles. The tunnel shall include a vertical hinged rear smooth plate door with a push-button latch.

Ladders

The length of ladders capable of being stored shall be the following: 28' 3-section, 14' roof ladder and 10' attic ladder w/shoes.

HANDRAILS / STEPS

Body Hand Rails Upgrade

Hansen red LED lighted knurled body hand rails shall be provided (includes pump module if applicable). The hand rails shall be installed between chrome end stanchions and shall be positioned at least 2" from the mounting surface to allow a positive grip with a gloved hand.

Handrail lighting shall be wired through clearance / headlight switch and only activate when park brake is set.

Hose Bed Folding Steps

Innovative Controls dual lighted LED folding steps shall be positioned to the driver side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Intermediate Pump Panel Step

An intermediate pump panel step shall be provided.

The intermediate step shall be constructed of 3/16" (.187") aluminum tread plate. The step shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall protrude from the diamond plate sheet a minimum of 1/8" (.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". The step shall be bolted onto the pump module and be easily removable for replacement in the case of damage.

Mounting feet to be reverse mounted to accommodate the vertically hinged panel (as applicable). Includes hand hold cut-outs on top of the step.

Lighting shall be provided to and positioned illumination of the upper surface of the step.

Intermediate Pump Panel Step

An intermediate pump panel step shall be provided.

The intermediate step shall be constructed of 3/16" (.187") aluminum tread plate. The step shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall protrude from the diamond plate sheet a minimum of 1/8" (.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4". The step shall be bolted onto the pump module and be easily removable for replacement in the case of damage. Mounting feet to be reverse mounted to accommodate the vertically hinged panel (as applicable). Includes hand hold cut-outs on top of the step.

Lighting shall be provided to and positioned illumination of the upper surface of the step.

Intermediate Rear Step

An 10" intermediate step below the hosebed shall be provided.

The step shall be constructed of 3/16" (.187") aluminum embossed treadplate. The step shall be bolted below the hosebed and be easily removable for replacement in the case of damage. The top rear surface of the step to have three (3) hand hold cut-outs horizontally.

Folding Steps [Qty: 4]

Innovative Controls dual lighted LED folding step(s) shall be located officer side front compartment face, driver side front compartment face. The folding step(s) shall meet current NFPA in step height and surface area.

Innovative Controls dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25" OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

MISC BODY OPTIONS

Mud Flaps

Black mud flaps with E-ONE logo shall be provided for the body wheel wells.

Body Mainframe

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The body mainframe shall include 3" x 3" 6061-T6 aluminum 3/8" (0.375") wall crossmember extrusion or 3" x 3" I-beam section aluminum extrusion depending on the application at the front of the body. A solid 3" x 3" "I-beam" section aluminum extrusion shall be provided the full width of the body forward and rearward of the rear wheel well. The crossmembers shall be designed to support the compartment framing and shall be welded to 1-3/16" x 3" (1.188" x 3") solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16" x 2" (0.31" x 2") fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact.

Body Mounting System

The main body shall be attached to the chassis frame rails with six (6) of 5/8" (0.625") diameter steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

Water Tank Mounting System

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3" x 3" frame assembly covered with rubber shock pads and corner braces formed from 3/16" angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5" of the frame rail top.

Hosebed Side Assembly

The hosebed side assemblies shall be made of 3" x 3" slotted aluminum extrusion and 3/16" (.188") smooth plate. The hosebed side assemblies shall provide a 85" high body.

The exterior hosebed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hosebed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

Hose Bed

The area above the booster tank shall have a hose storage area provided. The hose bed shall be constructed entirely from maintenance-free, 3/4" deep x 7.5" wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed design shall incorporate adjustable tracks in the forward area and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a Phillips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below.

Storage Pan

A storage pan shall be provided in the forward area of the hose bed.

The storage pan shall be constructed of 3/16" (.188") aluminum tread plate.

Divider

Long hose bed divider(s) shall be held short to allow for adjustability of the divider(s) with hose bed preconnect(s) if applicable per hose loading and option locations.

Fuel Fill

A recessed fuel fill shall be provided at the driver side rear wheel well area.

Fill Tower Location

The fill tower(s) shall be located inside the hose bed storage pan as applicable.

Swirled Finish

The body compartment interior (ceilings and walls) shall have a swirl finish. The swirl finish shall also be included on the inner pan of hinged doors and compartment floors (if smooth plate) and tool compartments (as applicable). Compartment floors shall remain diamond plate if so equipped. Does not apply to ceilings if they are the bottom side of the diamond plate exterior compartment top due to the uneven surface.

Corner Guards

The forward body corners of the body shall have corner guards installed. The corner guards shall be constructed of (.063") aluminum treadplate.

Rub Rail

The pump area module(s) and body shall have rub rails mounted along the sides and at the rear. **

The rub rail shall be C-channel in design and constructed of 3/16" thick 6463T6 anodized aluminum extrusion. The rub rail shall be 2.75" high x 1.25" deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

The top surface of the rub rail shall have minimum of five (5) raised serrations. Each serration being a minimum of .1" in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16" off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.

** 4x4 applications with 30 degree departure angle and flip down tailboard shall omit the rear body rub rails as noted above and shall have the trailing piece of the side rub rails behind rear axle attached in 2 pieces with the rearward piece mounted on an upward angle to match departure angle body. Rearward side marker light as located in rear rub rail shall be mounted angled in the rearward rail as added.

Anodize Aluminum Trim

A anodize aluminum trim shall be located at the bottom edge of all body compartment openings including pump enclosure with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment.

Body Wheel Well

Smooth plate single axle wheel well painted job color. Includes bolt-on composite wheel well liners and bolt-on polished alum fenderettes.

The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 3/16" (0.188") aluminum smooth plate painted job color. The wheel well trim shall be constructed from 6063-T5 formed aluminum extrusion.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The fenderettes shall be bolt-on and shall be easily removable. The fenderette shall be constructed from .080" aluminum with a mirror finish. The fenderette shall be 2 1/2" (2.5") wide x 2 1/4" (2.25") tall with a 26 7/8" (26.875") radius. A "P" shaped rubber gasket shall be provided between the fenderette and wheel well body panel.

The wheel well liners shall be constructed of a 3/16" (.187") composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

Recessed Light Switches

The rear light switches are to be recessed into the rear body corner extrusion.

Divider Support

Divider Support shall run full width of hosebed (side to side) at the front of the hosebed and towards the rear of the hosebed at top of the divider(s). Attach to each hosebed divider to provide additional support. Rear support to be Drop-In type for easy removal (if needed).

Hosebed Divider Notch [Qty: 3]

Notched hosebed divider(s). Notch to be per customer provided dimensions. See drawing on file. Priced per divider.

Swingarm box [Qty: 3]

A swingarm shall be provided on top rear of the body. Swingarm shall have a painted smooth plate box for the recessed directional lightbar or other electrical options mounted top/rear of the body. Swingarm to be hinged on one side with a D-ring style latch on the other side. Swingarm to be pivotted and have two locking positions to enable easy access inside the hosebed for loading of hose. Wired to door ajar.

SCBA BOTTLE STORAGE

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

SCBA 1 BOTTLE STORAGE E-ONE

E-ONE designed (1) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The door shall cover the recessed fuel fill if located in the wheel well adjacent to the SCBA storage.

U-shaped trough made out of aluminum smooth plate with rubber insert shall be provided to store SCBA bottles.

Location: driver side body wheel well offset rearward

SCBA 3 BOTTLE STORAGE E-ONE

E-ONE designed (3) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped troughs made out of aluminum smooth plate with rubber inserts shall be provided to store standard size SCBA bottles up to 6.75" in diameter and 24.5" in length. The upper two troughs can also store a standard size 20lbs ABC Extinguisher or 2.5 gal Water Extinguisher in each trough.

Location: officer side body wheel well offset forward, officer side body wheel well offset rearward

WHEEL CHOCK STORAGE

E-ONE designed Wheel Chock storage with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match the wheel well area material and finish.

The door shall be wired to "Door Open" indicator inside cab.

The storage area shall be capable of holding (2) Zico Model SAC-44-E or comparable Wheel Chocks (not included).

Location: driver side body wheel well offset forward

PUMPS

Pump Rating

The fire pump shall be rated at 1500 GPM.

Fire Pump System

The pump shall be a midship-mounted Hale QMAX single stage centrifugal pump. The pump shall be mounted on the chassis frame rails of commercial or custom truck chassis and have the capacity of 1,250 to 2,250 gallons per minute (U.S. GPM) NFPA 1901 rated performance, and shall be split-shaft driven from the truck transmission.

The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 MPa). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump body shall be horizontally split in two sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.

The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

The pump shaft shall be heat-treated, corrosion-resistant stainless steel and shall be rigidly supported by three (3) bearings for minimum deflection. The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure-balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash-lubricated. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Two (2) 6" diameter suction ports with 6" NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Gearbox – G Gearbox

Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of drive through torque of the engine system. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature. The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine. All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust. (No exceptions.) The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump. For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position.

Two green lights to be located in the truck driving compartment and one green light on pump operators panel adjacent to the throttle control. For manual transmissions, one green warning light will be provided for the driving compartment. All lights to have appropriate identification/instruction plates.

Discharge Manifold

The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Pump Shift

The pump shift shall be pneumatically-controlled using a power shifting cylinder.

The power shift control shall be mounted in the cab and be labeled "PUMP SHIFT".

A green indicator light shall be located in the cab and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled "OK TO PUMP". This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).

Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

Gearbox Cooler

A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over.

PUMP CERTIFICATION

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with the edition of NFPA documented elsewhere in these specifications. The pump shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in NFPA.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The tests shall include, at a minimum, a piping hydrostatic test, pump test, pumping engine overload test, pressure control system test, priming device tests, vacuum test, and the water tank to pump flow test as outlined in NFPA.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 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

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer's Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

PUMP OPTIONS

Speed Counter

The test connection shall be installed on the pump panel to manually verify the vehicle engine speed displayed on the electronic tachometer.

Steamers, Flush+1

The pump 6" steamer intake(s) shall be mounted approximately 1" from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.)

Location: driver's side, officer's side.

Zinc Anodes

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump.

Thermal Relief Valve

A Hale TRVL-120 thermal relief valve shall be provided.

The valve shall help protect the pump by automatically monitoring pump water temperature. The relief valve shall automatically dump a controlled amount of water to the ground when the pump water exceeds the pre-set temperature of the relief valve.

A pump panel mounted indicator shall be installed at the pump operator's panel.

Manual Pump Shift Override

One (1) manual pump shift override shall be side panel mounted to engage the pump in the event of an air pressure failure. The pump shift shall be operated by a chrome handled push-pull cable.

Mechanical Pump Seal

The midship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions. This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 psi.

The mechanical seal assembly shall be 2 inches in diameter and consist of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat, with a Teflon back-up seal provided.

Only one mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one piece pump shaft (no exceptions). A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Pump Cooler

The pump shall have a 3/8" line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being

discharged. The pump cooler line shall be controlled from the pump operator's panel by a Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag

Trident Primer

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction and designed for fire pumps of 1,250 GPM (4,600 LPM) or more. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design.

The primer shall be mounted above the pump impeller so that the priming line will automatically drain back to the pump. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a removable fine mesh strainer to prevent entry of debris into the primer body.

The system shall create vacuum by using air from the chassis air brake system through a two-barrel multi-stage internal "venturi nozzles" within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

Air Flow Requirements

The primer shall require a minimum of 15.6 cubic foot per minute air compressor and shall be capable of meeting drafting requirements at high idle engine speed. The air supply shall be from a chassis supplied "protected" air storage tank with a pressure protection valve. The air supply line shall have a pressure protection valve set between 70 to 80 PSIG.

Primer Control

The primer control shall have a manually operated, panel mounted "push to prime" air valve. The valve shall direct air pressure from the air brake storage tank to the primer body. To prevent freezing, no water shall flow to and from the panel control.

Warranty

The primer shall be covered by a five (5) year parts warranty.

Pump Shift - Electric

The pump shift shall be accomplished by two (2) push-button switches. One push button shall be for shifting into pump mode and the other shall be for shifting the pump transmission back to road mode. The switches shall include LED lighting to indicate the active mode.

An additional indicator light shall be located in the cab visible to the driver and be labeled "PUMP ENGAGED". The light shall not activate until the pump shift has completed into pump engagement position.

A second indicator light shall be located in the cab visible to the driver and be labeled "OK TO PUMP".

INTAKES

Left Intake 2.5 Akron Valve

One (1) 2-1/2" suction inlet with a manually operated 2-1/2" Akron valve shall be provided on the left side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel, and shall be equipped with a chrome plated rockerlug plug with a retainer device.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the left side pump panel.

Right Intake 2.5 Akron Valve

One (1) 2-1/2" gated suction inlet with a manual operated Akron valve shall be installed in the right side pump panel with the valve body behind the panel. The valve control shall be located at the intake and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2" NST female chrome inlet swivel and shall be equipped with a chrome plated rockerlug plug with a retainer device.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4" bleeder valve assembly will be installed on the right side pump panel.

5" Rear Intake w/Relief Electric Akron

One (1) 5" intake with an Akron electric actuated valve shall be provided from the intake side of the pump to the rear of the apparatus terminating with 5" MNPT threads. An intake relief valve shall be installed external of the electric valve to relieve excess pressure.

The valve shall be 5" Akron 7900 series electric butterfly. The valve shall utilize an electric driven worm gear actuator. The valve may also be operated manually in case of electrical system failure.

Quarter turn valves shall be provided at the lowest point to allow water to be drained from the intake.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: officer rear.

INTAKE OPTIONS

Adapter Intake 5" NST Rear

The outside end of the rear intake shall have a 5" female NPT x 5" male NST chrome adapter with suction strainer. The suction shall come with a 5" chrome cap.

Intake Pressure Relief

A18 Series - PRESSURE RELIEF VALVE - TFT's pressure relief valve is adjustable from 50 to 250 psi (3 to 14 bar) with easy to see 25 psi (2 bar) increments. The aluminum casting is plastic impregnated, hard coat anodized, and TFT powder coat finished inside and out for maximum corrosion protection. Works with Darley, Waterous, or Hale bolt hole patterns for direct use on pump flanges.

DISCHARGES AND PRECONNECTS

Discharge 2.5" Front Bumper Akron Manual

One (1) 2-1/2" preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2-1/2" heavy duty hose coming from the pump discharge manifold to a 2-1/2" mechanical swivel hose connection to permit the use of the hose from either side of the apparatus and located above the bumper area located on top of the gravel shield.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The discharge shall be supplied with a 3/4" bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a quarter-turn valve on the pump panel.

An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator's panel.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Swivel Elbow, Polished Stainless Steel

There shall be a polished stainless steel swivel elbow provided for the front bumper discharge located on top of the bumper officer's side outboard.

1.5" Single Crosslay Akron Valve [Qty: 2]

Two (2) single crosslay discharges shall be provided at the front area of the body. The crosslays shall include one (1) 2" brass swivel with a 1-1/2" hose connection to permit the use of hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2" heavy-duty hose coming from the pump discharge manifold to the 2" swivel. The hose shall be connected to a manually operated 2" Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator's panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 1 & 2.

Left Panel 2.5" Discharge Akron Valve

Two (2) 2-1/2" discharge outlets with a manually operated Akron valve shall be provided at the left hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

Right Panel 2.5" Discharge Akron Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 2.

Left Rear 2.5" Discharge Akron Valve

Two (2) 2-1/2" discharge outlets with a manually operated Akron valves shall be supplied to the left rear of the apparatus by a 2-1/2" stainless steel pipe.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left rear discharge, left rear discharge 2 (inboard or below).

Right Rear 2.5" Discharge Akron Valve

One (1) 2-1/2" discharge outlet with a manually operated Akron valve shall be supplied to the right rear of the apparatus by a 2-1/2" stainless steel pipe.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right rear discharge.

Right Side 4" Handwheel Discharge

One (1) 4" diameter discharge outlet with a handwheel controlled Akron valve shall be provided at the side pump panel.

The valve shall be an Akron 8840HD series with a bronze flat ball design for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the brass ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The Trident handwheel valve control shall have the following features:

- Handwheel driven worm gear rotates a gear sector for smoother and easier operation under pressure.
- A 50:1 ratio.
- 6" handwheel.
- 12-1/2 turns for full open/close.
- Opening and closing speed complies with the current edition of NFPA.
- Position indicator which shows the position of the valve ball to meet NFPA 1901.

The valve controls and indicators shall be located at the pump operator's panel.

Location: right side discharge 1.

3" Deck Gun Discharge Electric Akron

One (1) 3" deck gun discharge outlet with an electrically operated Akron valve and 3" stainless steel pipe with MNPT termination shall be provided.

Piping shall be rigidly braced as necessary and installed securely so no movement develops when the line is charged.

The valve shall be 3" Akron 8600HD series with 316 stainless ball and polymer seals for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless ball when in a throttle position with water flowing. The valve shall be of the unique Akron Swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve shall utilize an electric driven worm gear actuator. The valve may also be operated manually in case of electrical system failure.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Front Bumper Swivel

Polished Stainless Steel Swivel Located on Top of Bumper to be recess 2".

Deck Gun Location

Deck gun piping shall be positioned centered in deck gun channel. This location shall allow for optimal operation of a deck gun monitor once installed.

DISCHARGE OPTIONS

Tether Kit, Akron Monitor

An Akron tether remote control kit with a 30' cable shall be provided for an Akron monitor. Plug for the remote control to be located: L1.

Monitor, Akron 3440 DeckMaster

An Akron DeckMaster model 3440 pyrolite monitor shall be provided with a 3" inlet and a 2-1/2" outlet. The monitor shall flow up to 1250 GPM and shall be capable of electric elevation deployment, 3440 degree horizontal rotation, vertical travel 90 degrees above to 45 degrees below horizontal, have a manual override. A pump panel mounted control box with stow shall be provided and located on the pump operator's panel.

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed 1/4 turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.

Bleeder Drain Valve [Qty: 11]

The bleeder/drain valves shall be Innovative Controls 3/4" ball brass drain valves with a chrome-plated 1/4 turn handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve.

Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezels are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panel-mount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

Trident Hand Wheel Control

One 4" Trident Tru-Flo hand wheel valve control shall be located on specify discharge outlet . This Hand-Wheel and Dial Indicator utilizes magnets to maintain the dial face in a stationary and readable orientation as the Hand-Wheel is rotated to fully open or closed valve positions.

The indicating gauge is sealed and constructed of a polycarbonate, non-yellowing lens and case. The entire unit is corrosion resistant with brass and stainless steel components. The Hand-Wheel assembly incorporates four separate low friction bearings for smooth operation.

Location: deck gun.

Nozzle Akron 1578 SaberMaster

An Akron SaberMaster model 1578 master stream fully automatic nozzle shall be provided. The solid bore to flow streams shall be capable of changing with a flip of a switch and have a flow range capacity of up to 1250 GPM. The nozzle shall be electrically remote controlled and shall be of a Pyrolite construction

Akron Electric Valve 9343 Controller

An Akron Brass Style 9343 Valve Controller shall be provided with a five year manufacturer warranty. The display shall be a full color LCD display with a backlight and manual adjustment of the brightness as well as an auto-dimming option. The electric controls shall provide true position feedback, requiring no clutches in the motor or current limiting. The unit shall be sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator. The controller will provide an LCD display showing valve position indication and have up to three preset locations that can be user set and easily recalled upon each use. Valve position indication will be determined from true position feedback and indicate the exact position of the valve.

Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation.

Locate on pump operator panel to control 5 in. rear intake, deck gun.

PRESSURE GOVERNORS

FRC TGA400 Governor

Fire Research InControl series TGA400-A00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5-1/2" high by 10-1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1-3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.

The following continuous displays shall be provided:

Pump discharge; shown with four daylight bright LED digits more than 1/2" high

Pump Intake; shown with four daylight bright LED digits more than 1/2" high

Pressure / RPM setting; shown on a dot matrix message display

Pressure and RPM operating mode LEDs

Throttle ready LED

Engine RPM; shown with four daylight bright LED digits more than 1/2" high

Check engine and stop engine warning LEDs

Oil pressure; shown on a dual color (green/red) LED bar graph display

Engine coolant temperature; shown on a dual color (green/red) LED bar graph display

Transmission Temperature: shown on a dual color (green/red) LED bar graph display

Battery voltage; shown on a dual color (green/red) LED bar graph display.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Battery Voltage

Low Battery Voltage (Engine Off)

Low Battery Voltage (Engine Running)

High Transmission Temperature

Low Engine Oil Pressure

High Engine Coolant Temperature

Out of Water (visual alarm only)

No Engine Response (visual alarm only).

The program features shall be accessed via push buttons and a control knob located on the front of the control panel. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 PSI. The intake pressure display shall show pressures from -30 in. Hg to 600 PSI.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 PSI. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push-button to return the engine to idle.

The pressure governor, monitoring and master pressure display shall be programmed to interface with a specific engine.

Location of the governor and monitoring display shall be: Pump Operator's Panel.

GAUGES

GAUGE IC 10 LED FOAM TANK LEVEL

One (1) Innovative Controls brand foam tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the foam tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

Pressure Gauge [Qty: 2]

Innovative Controls 6" liquid-filled pressure gauges shall monitor master pump intake and master pump pressures. They shall be located on the pump operator's panel and located close to each other with the intake gauge to the left of the master pump discharge gauge. They shall read from 30" vacuum to 400 psi. The construction shall be a heavy duty, reinforced stainless steel case with a machined brass stem connection solidly bolted to a stainless steel case.

GAUGE IC 10 LED TANK LEVEL WATER/PS2TANK

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator's panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. System calibration shall be accomplished via supplied magnet. Display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an "anti-slosh" feature.

In addition to the pump panel mounted lights there shall be one (1) set of Whelen PSTank2 series LED (Light Emitting Diode) strip light installed as specified.

The system shall be controlled by an Innovative Control tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The additional tank level system shall be interlocked through the parking brake assembly so as not to be on while the vehicle is in motion.

The remote strip light shall be arranged as follows:

Full Green
3/4 Blue
1/2 Amber
1/4 Red

Location of Whelen PSTank2 Strip Lights: each side of cab rear of front doors.

Pressure Gauge [Qty: 11]

Innovative Controls TC Series 2.5" (63MM) pressure gauge(s) shall be provided. Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel.

The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.

The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40°F to +160°F.

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Each gauge shall exceed (NFPA 1901 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments.

The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freeze-up and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

The gauges shall display a range specified with enhanced black markings on a white dial.

Pressure Gauge

Pump panel pressure gauges shall be 0-400 / Master Intake gauge, if applicable, shall be 30-0-400.

FOAM SYSTEMS

Dealer Installed Foam System

Foam system to be installed and warranted by the dealer according to customer specifications - no system or manifold provided.

ELECTRICAL SYSTEMS

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901 and 2024 edition of NFPA 1900 (Annex A). The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle's park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.

IMS Shutdown Timer

The ZeroRPM IMS engine shutdown timer shall be set for 30 seconds.

HVAC Controls

The air conditioning and heating systems of the apparatus chassis cab shall be controlled through the multiplex electrical system's color display(s). The system shall have the capability to provide automatic climate control.

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a SafeLink Multiplex electrical system. The system shall use active/standby architecture and communicate via J1939 CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA standards.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weather-resistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system shall use the J1939 protocol.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness as need to interface electrical devices with multiplex modules.
- The grounds from each device should return to the main ground trunk in each sub harness by the use of ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA (Specific edition documented elsewhere in these specifications)
- SAE J1127 and J1127
- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082" plus or minus .01". The imprinted characters shall repeat at a distance not greater than 3".

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A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04" and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of -40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

Fast Idle System

A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output.

NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test fail.

2. Alternator performance test at idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in the NFPA Standard, or a system voltage of less than 11.7 volts DC for a 12-volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12-volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA Required Documentation

The following documentation shall be provided on delivery of the apparatus:

- A. Documentation of the electrical system performance tests required above.
- B. A written load analysis, including:
 - a. The nameplate rating of the alternator.
 - b. The alternator rating under the conditions.
 - c. Each specified component load.
 - d. Individual intermittent loads.

Multiplex Display

The multiplex electrical system shall include a 10" color display.

The display shall have the following features:

- Bonded transmissive TFT LCD screen
- Diagonal measurement of no less than 10"

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

- J1939 Communications protocol capable
- IP67 sealed front and rear
- Three (3) video inputs for optional back-up camera(s)
- Twelve (12) multi-function programmable tactal buttons
- Home button
- Menu button

Display screens shall be configured to include the following:

- Warning light switching
- Work and scene light switching
- Indicators for park brake, PTOs and aerial jacks down (if applicable)
- Occupant detection indication
- Specific door ajar indication
- Clock
- Access to the multiplex system diagnostics

The display shall be located officer's side engine cover, driver's side engine cover.

LIGHT BARS

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the front light bar.

Front Light Bar Color(s)

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

If applicable, includes side facing light bars when colors are the same.

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the side facing mini light bars.

Light Bar

A Whelen Freedom IV Series 72" LED light bar model F4R7 with ten (10) LED modules shall be provided; two (2) front corner mounted Rota-Beam LED, six (6) forward facing LED warning lights (4 Rota-Beam, 2 LED modules) and two (2) side facing LED modules. No rear facing LEDs.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

Light Bars

A pair of Whelen 23.25" Mini-Freedom Rota-Beam LED light bars with shall be provided. Each light bar shall consist of two (2) front corner Rota-Beam LEDs and one (1) center mounted Rota-Beam LED.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bars shall be installed in the following location: each side over front cab doors.

WARNING LIGHTS

Hazard (Door Ajar) Light

There shall be a 2" red LED hazard light installed as specified.

The light shall be located center overhead.

Warning Light

A Roto Ray LED rotating light shall be provided on the front of the cab. The light assembly shall have three LED lights, one (1) red, one (1) green and one (1) white that rotate at 200 RPM. It shall be located center of cab below the windshield.

A switch shall be provided for activation of the light and shall be wired to deactivate through park brake.

Upper Rear Warning Lights

Whelen model B63M7 LED beacons shall be supplied on polished aluminum mounts. Each unit shall consist of a RotaBeam LED upper beacon with red LED/clear lenses and a M7 series Super LED with RED with CLEAR lenses LEDs'.

The lights shall be located rear upper body on aerial style brackets to meet upper Zone C requirements.

Warning Lights

Two (2) Whelen Rota-Beam series model 6RB* Super LED RED with CLEAR lenses, RED with CLEAR lenses shall be provided. The lights shall include chrome flanges where applicable.

Location: (1) each side NFPA/ULC required lower zone front facing, (1) each side in front quad inboard of NFPA warning light.

Warning Lights

Eight (8) Whelen M6 series Linear Super LED RED with CLEAR lenses, shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side NFPA/ULC required lower zone forward side facing, (1) each side NFPA/ULC required lower zone midship side facing, (1) each side NFPA/ULC required lower zone rear facing, (1) each side above tail lights.

Warning Lights

Two (2) Whelen T-Series model TSS0 Super LED light heads shall be provided. The lights shall be RED with CLEAR lenses. The lights shall include chrome flanges where applicable.

Location: (1) each side NFPA/ULC required lower zone rear side facing.

DIRECTIONAL LIGHT BARS

Directional Light Bar Control Location

The directional light bar control head shall be located in the center overhead console offset to driver side.

Directional Traffic Warning Light

One (1) Whelen DUO TADF6 LED 37" long Traffic Advisor with clear lenses shall be provided. Amber LEDs shall be provided for traffic advisor and rear warning lights shall be A/A/A/A/A/A.

The directional bar shall include a TADCTL1 control head.

The light shall be installed at the rear of the body to direct traffic around the vehicle.

SIRENS

Electronic Siren Control Location

The electronic siren control shall be located in the center overhead console offset to officer side.

Electronic Siren

A Powercall model UDX7 siren shall be installed in the cab. The siren shall feature an illuminated control panel with rotary switch for mode selection, three (3) push button switches for air horn, phaser and intersection modes, and a noise cancelling PA microphone. The siren shall also feature a USB port for additional tones from an external source.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

Operating modes include Manual, USB, Wail, Yelp, Hi-Lo, Powercall, Whoop and shall include a Tap feature.

Siren is to be connected to one (1) 200 watt or up to two (2) 100W RMS speaker(s).

Mechanical Siren

A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to driver.

The siren shall be located officer side front bumper.

SPEAKERS

Siren Speaker

One (1) Whelen model SP123BMC, 100 watt speaker with chrome grill shall be recessed in the front bumper.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speaker shall be located center front bumper.

DOT LIGHTING

License Plate Light

One (1) Truck-Lite model 15205 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

Tail Lights

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights with clear lenses shall be installed in a four (4) light vertical housing each side at rear and wired with weatherproof connectors.

Light functions shall be as follows:

- One (1) model M62BTTC LED red running light with red brake light in upper position.
- One (1) model M62TC LED amber turn signal in middle position.
- One (1) model M62BU LED clear back-up light in lower position.

A one-piece cast housing shall be mounted around the three (3) individual lights in a vertical position. The lower space will be used by the M6 or equivalent lower NFPA warning light.

License Plate Bracket

There shall be bracket fabricated from aluminum smooth plate sanded, secured to rear of the body to accommodate a license plate.

LED Marker Lights

LED clearance/marker lights shall be installed on the apparatus. Body marker lights shall be 3/4" diameter grommet mounted LED. All applicable lights are to have clear lenses.

Upper Cab:

- Five (5) amber LED clearance lights on the cab roof.

Lower Cab:

- One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.

Upper Body:

- One (1) red LED clearance light each side at rear of body, facing rear.

Lower Body:

- Three (3) red LED clearance lights centered at rear.
- One (1) red LED clearance light side facing at the trailing edge on either side of the apparatus body.
- One (1) amber LED clearance light side facing at front of body/pump module.
- One (1) amber LED auxiliary turn light side facing at front of body/pump module.

Black D.O.T. Bezels

All exterior mounted D.O.T. lighting to have bezels/brackets/covers black (painted as applicable) IPO chrome/stainless steel where applicable.

Turn Signal Flash Pattern

The forward (if applicable) and rear turn signals shall have a sequential arrow flash pattern.

LIGHTS - COMPARTMENT, STEP & GROUND

Compartment Light Package

Two (2) Amdor Luma-Bar LED compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights, located two (2) each side.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4" circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

LIGHTS - DECK AND SCENE

Rear Work Lights

Two (2) FireTech LED lights model FT-WL3500-FT shall be installed. The lights shall produce 1,981 effective lumens and have a black housing. The lights shall be switched with work light switch in the cab.

Location: rear body/beavertail area on the trailing edge up high.

Whelen Work Lights

One (1) pair of Whelen LED Perimeter Enhancement Lights shall be provided. The lights shall be wired through work light switch in cab.

Location: Crosslay

Hose Bed Light [Qty: 2]

One (1) Federal Signal 64LEDSCENE LED light with a clear lens shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. All electrical connectors are to be enclosed in the housing providing protection against the elements.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The hose bed light shall be switched with work light switch in the cab.

LIGHTS - NON-WARNING

Pump Compartment LED Light

An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

Three (3) Amdor H2O LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Engine Compartment Light

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lense, sealed / waterproof housing and integral switch. The light wiring circuit shall activate when the cab is tilted and master power is switched on.

CONTROLS / SWITCHES

Door Ajar Alarm

An audible alarm shall be provided through the multiplex display(s) in the cab wired into the door ajar or indicator.

Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the air horns. It shall be located officer's side.

Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located driver's side, officer's side.

Programming Instructions

Additional programming shall be provided. Additional programming shall be: ground lights wired through turn signal IATS.

Additional Switch

A 12 volt switch shall be provided.

The switch shall be located accessible to driver for windshield wiper override, recess mounted on driver rear of body for work lights, recess mounted on driver rear of body for step lights.

Three Way Switching

An additional momentary switch with circuitry shall be provided to allow on/off operation of specified device from remote locations. The remote switch shall be mounted pump operator panel for driver side 12v scene/flood lights, pump operator panel for officer side 12v scene/flood lights, pump operator panel for work lights, officer's side pump panel for 12v scene lights on officer's side cab/body, recess mounted on officer rear of body for work lights, recess mounted on officer rear of body for step lights, recess mounted on officer rear of body for officer side 12V cab/body flood/scene lights., pump operator's panel for LED flood light(s) on driver side cab/body, pump operator's panel for LED flood light(s) on officer side cab/body.

Programming Instructions

Additional programming shall be provided. Additional programming shall be: ground lights to activate through park brake. Switch (if present) is to turn off lights when brake is set, the FireTech LED Halo in the headlights to activate with and/or in addition to the driving lights, windshield wipers interlocked through park brake.

Additional Door Ajar Switch

An additional 12 volt door ajar switch shall be provided.

The switch shall be located on the front bumper tray lid(s).

CAMERAS / INTERCOM

Camera Back-Up

There shall be a Safety Vision camera model number SV-630A-KIT provided. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view with audio. The camera shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator. The camera shall be interlocked with the chassis transmission. When the apparatus is placed in reverse the camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.

MISC ELECTRICAL

Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

GENERATOR TEST

Line Voltage Power Source Testing

The line voltage power source (generator and / or inverter) shall be tested at the manufacturer's facility by an independent, third-party testing service. The conditions and testing of the power source shall be as outlined in NFPA.

The test shall include operating the power source for two hours at 100% of the rated load. Power source voltage, amps, frequency shall be monitored. The prime mover's oil pressure, water temperature, transmission temperature (if applicable) and power source hydraulic fluid temperature (if applicable) shall be monitored during testing.

The results of the test shall be recorded and provided with delivery documentation.

BREAKER BOXES

Circuit Breaker Panel

An eight (8) place breaker box with up to six (6) appropriately sized ground-fault interrupter circuit breakers shall be supplied. The breaker box will include a master breaker sized according to the generator output which will occupy two (2) places. The breaker box will be located in the specified compartment, not to exceed 12' run of wire.

Dimensions: 12.50" high x 8.88" wide x 3.80" deep.

Location: L1 forward wall.

LIGHTS - AREA

Cab Brow Light

One (1) FireTech 12V LED model FT-B-72-ML 75" black housing brow light with integral marker lights shall be provided. The light shall be installed on the front cab brow in place of the standard DOT marker lights. the light shall feature 54 LEDs' producing 19,665 usable lumens and five (5) DOT approved marker lights. The 285W 12V light shall draw 23.75 amps.

Cab Brow Light [Qty: 2]

One (1) FireTech 12V LED mini-brow flood light model FT-MB-27-F-B 35" long shall be provided. The light shall feature 27 LEDs` producing 9,317 usable lumens. The 135W 12V light shall draw 11.25 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly shall be located driver and officer side over rear cab door.

Cab Brow Light [Qty: 2]

One (1) FireTech 12V LED double stacked flood light model FT-MB-2.36-FT-B 40" long with a model FT-MBKIT-PX bracket mount shall be provided. The light shall feature 72 LEDs` producing 22,772 usable lumens. The 324w 12V light shall draw 27 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly shall be located above L2/R2 compartments.

LED Scene Light

A 12V FireTech model FT-SL-GESM-BLED Pole Mount Guardian Elite Scene Light shall be provided. Head only (Requires separate pole option). The 125w light shall produce 12,290 effective lumens and draw 10.41 amps. The lighthouse shall be white. Includes switch accessible to driver.

Location: officer side back of cab, driver side back of cab.

Telescopic Light Pole

An FRC model 530 bottom raising aluminum telescopic pole with up indicator switch (-SW) shall be provided. The pole shall allow for 360-degree rotation of the light. A locking knob shall hold the pole at the desired height.

Location: officer side back of cab, driver side back of cab.

MISC ELECTRICAL 110V

Inverter

A Xantrex 3000 watt AC inverter shall be installed. The inverter shall produce 3000 watts continuous with 6000 watts surge power (> 2 seconds).

The unit shall include an internal transfer relay, low battery cut-off feature and include over-temperature and overload protection.

The inverter shall be wired to the 120v shore power receptacle.

The inverter shall include an integral control panel with display.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

The inverter shall be mounted in a body compartment as close to the chassis batteries as practical (20` max cable length).

Dimensions: 15.4" long x 12" wide x 4.0" high (with flanges)

Current Draw: Up to 288 amps 12v

Inverter shall be NFPA tested at 1800 watts)

Warranty: 2 Years

GROUND LADDERS

Duo-Safety Folding Ladder

A Duo-Safety 585-A, 10` folding attic ladder shall be provided.

DUO-SAFETY ROOF LADDER

A Duo-Safety 775-A, 14` roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other.

Duo-Safety Extension Ladder

A Duo-Safety model 1200-A, 28` two-section extension ladder without poles shall be supplied.

MISC LOOSE EQUIPMENT

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

EXTERIOR PAINT

Paint Sample Spray Out

A paint sample spray out of the base cab / body paint color will be provided for approval prior to painting. Qty one in BOM will supply a pair of paint samples.

Paint Valve Ends

The valve ends shall be painted job color.

Painted Pump/Pre-Connect Module(s)

The apparatus pump/pre-connect module(s) shall be painted job color.

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The paint process shall match what is applied to the body.

Paint Body Small

The apparatus body shall be painted a (non-metallic) color as specified.

Paint Custom Cab

The apparatus cab shall be painted a (non-metallic) color as specified.

Paint Rear Body

Rear body surface shall have a painted job color finish. Includes hinged doors that do not have discrete sales codes and removable panels.

Grille Painted Flag

The front cab grille mesh shall be air brush painted with a waving United States flag.

Standard and/or extended warranties shall not apply to this option.

Air Conditioning Condenser

The air conditioning condenser cover mounted on the roof of the cab shall be painted color: Job Color.

Sanded Extrusions

Rear cab extrusions shall be sanded finish same height as rear cab diamond plate overlay panels.

Paint Process/Manufacturer

The specified E-ONE supplied components shall be painted with PPG Industries paint.

All applicable metal surfaces shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the surfaces that require a critically aesthetic finish and sanded smooth.

The applicable surfaces shall then be coated with a high quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the surfaces to a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils.

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The applicable surfaces shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.0 mils with a maximum of 4.0 mils, followed by a clear top coat with a minimum of 2.0 mils and a maximum of 4.0 mils. All applicable components shall then be baked to speed the curing process of the coatings.

INTERIOR PAINT

Cab Interior Paint

The interior of the cab shall be painted multi-tone gray finish. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

PROTECTIVE COATINGS

LINE-X Bumper Top Perimeter

LINE-X bumper: The top perimeter of the formed heavy duty bumper shall have Line-X finish.

Includes top lip, radius, and approx. 1" down.

LETTERING

Sign Gold Letter [Qty: 100]

Sign Gold letters upto 6" tall shall be applied.

The exact size and location of the letters shall be as specified by the customer.

Lettering Shade and/or Outline [Qty: 100]

Existing letters shall be shaded and/or outlined as specified by the customer to provide a contrast.

STRIPING

Reflective Stripe in Rubrail

The reflective stripe in the body rubrail shall be white.

CAB AND BODY STRIPE

A single Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body. The stripe shall have a hockey style, Z or S style or any other customer specific design style.

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The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer.

CAB AND BODY STRIPE [Qty: 2]

An additional Scotchlite stripe, up to 3 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant and the design, size, color and location shall be as specified by the customer.

Front Bumper 3M Diamond Grade Striping

Chevron style 3M Diamond Grade striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern.

Rear Body 3M Diamond Grade Striping

Chevron style 3M Diamond Grade striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with NFPA 1900/1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

GRAPHICS

SignGold Logo [Qty: 2]

A SignGold customer logo (up to 12") supplied to E-ONE's Graphics department in a digital format to assist with design. Logo to be installed reference graphics layout drawing.

Graphics Drawing

A graphics drawing shall be provided for the apparatus. The drawing shall include striping, lettering and logos meeting NFPA guidelines. The drawing shall be presented for review and approval by the end user prior to application of the graphics.

Logo

A E-ONE logo with a grey background shall be provided on each of the rear vertical M6 tail light housings.

WARRANTY / STANDARD & EXTENDED

General 1 Year Warranty

Purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0001. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Body Structural (Aluminum) Warranty

Purchaser shall receive a Body Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0502. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Plumbing and Piping (Stainless Steel) Warranty

Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Meritor Front Axle Warranty

A warranty shall be provided for the front axle by Meritor Automotive. The warranty period shall be as follows based on axle type:

- FL-941, FL-943 and MFS up to 21,500: 5-year / unlimited miles parts and labor
- MFS rated at 22,800: 2-year / 200,000 miles parts and labor
- Front drive axle: 2-year / unlimited miles parts and labor

Meritor Rear Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive.

Custom Chassis Warranty

Purchaser shall receive a Custom Chassis One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0101. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Electrical Warranty

Purchaser shall receive an Electrical One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Cab Structural Warranty

Purchaser shall receive a Cab Structure Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Paint and Finish Warranty

Purchaser shall receive a Paint and Finish Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Cab Paint and Finish Warranty

Purchaser shall receive a Cab Paint and Finish Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Frame Rail Corrosion Warranty

Purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty Five (25) Years or 150,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0316. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Frame Rail Warranty

Purchaser shall receive a Frame Rail Lifetime (50) Years or 250,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0305. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request

Emissions Systems Warranty

Purchaser shall receive a Regulated Emissions Systems Ten (10) Years or 450,000 Miles or 22,000 Engine Hours limited warranty in accordance with, and subject to, warranty certificate RFW0144. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request

Emissions Systems Warranty

Purchaser shall receive a Regulated Emissions Two (2) Years or 24,000 Miles limited tire warranty in accordance with, and subject to, warranty certificate RFW0145. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Emissions Systems Warranty

Purchaser shall receive a Regulated Emissions Five (5) Years or 100,000 Miles limited AC system leak warranty in accordance with, and subject to, warranty certificate RFW0146. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

Pump Panel Approval Drawing

A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

Approval Drawings

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator's position, scaled the same as the elevation views.

Approval Drawings - Dash Panel Layout

A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.

Specification for: SOUTHERN SHORES FIRE DEPARTMENT

- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator's manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

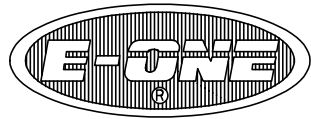
A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer's location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the E-ONE's fire apparatus operator and maintenance manuals or commercial chassis manufacturer's operator and maintenance manuals.



SOUTHERN SHORES FIRE DEPARTMENT

SOUTHERN SHORES, NC

Q150123

PUMPER

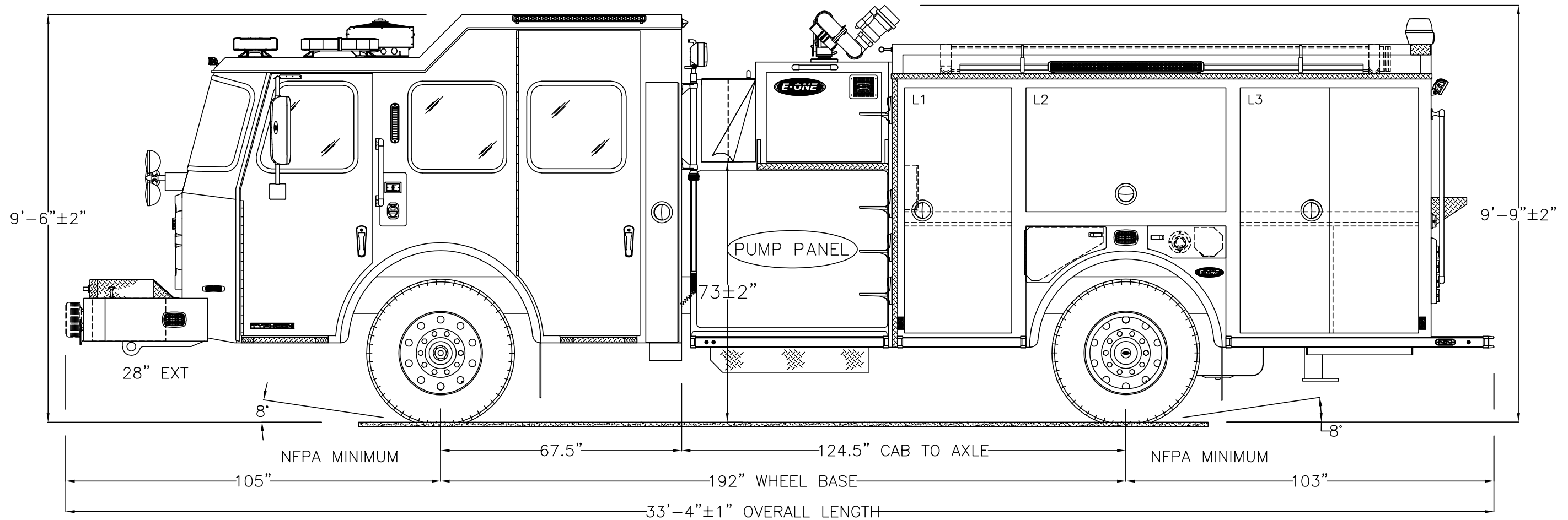
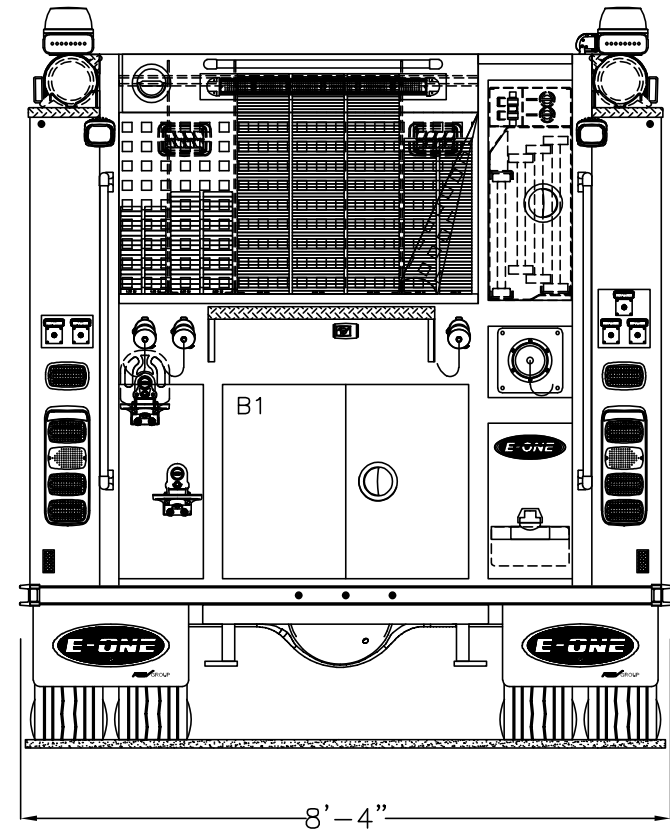
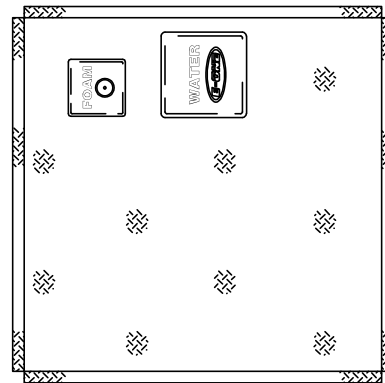
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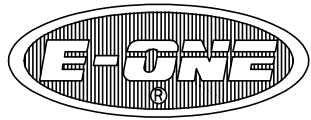
1500 GPM HALE QMAX PUMP 750 GALLON WATER TANK 30 GALLON INTEGRAL CLASS "A" FOAM			HOSE LOAD:		
			300' OF 1.75" DJ		
			300' OF 2.50" DJ		
			1050' OF 5.00" LDH		
			400' OF 3.00" DJ		
COMPT.	OPENING		INTERIOR DIMENSION		
L1	30W	68H	30W	34H	12D UPPER
			30W	30H	26D LOWER
R1	30W	68H	30W	34H	12D UPPER
			30W	28H	26D LOWER
L2/R2	56W	34H	56W	34H	12D
L3/R3	50W	68H	50W	34H	12D UPPER
			50W	30H	26D LOWER
B1	38W	30H	38W	30H	27D

THIS DRAWING IS FOR REFERENCE PURPOSES. ALL DIMENSIONS ARE SUBJECT TO MINOR VARIATIONS DUE TO MANUFACTURING PROCESSES.

This print is the property of E-ONE, Inc. and is loaned to you subject to return on demand, unless otherwise agreed to in writing by E-ONE, Inc. Its contents are confidential and must not be copied or submitted to third parties for use or examination.

HOSEBED HEIGHT:
(FOR REFERENCE ONLY)
TO TAILBOARD: 45"
TO GROUND: 69±2"



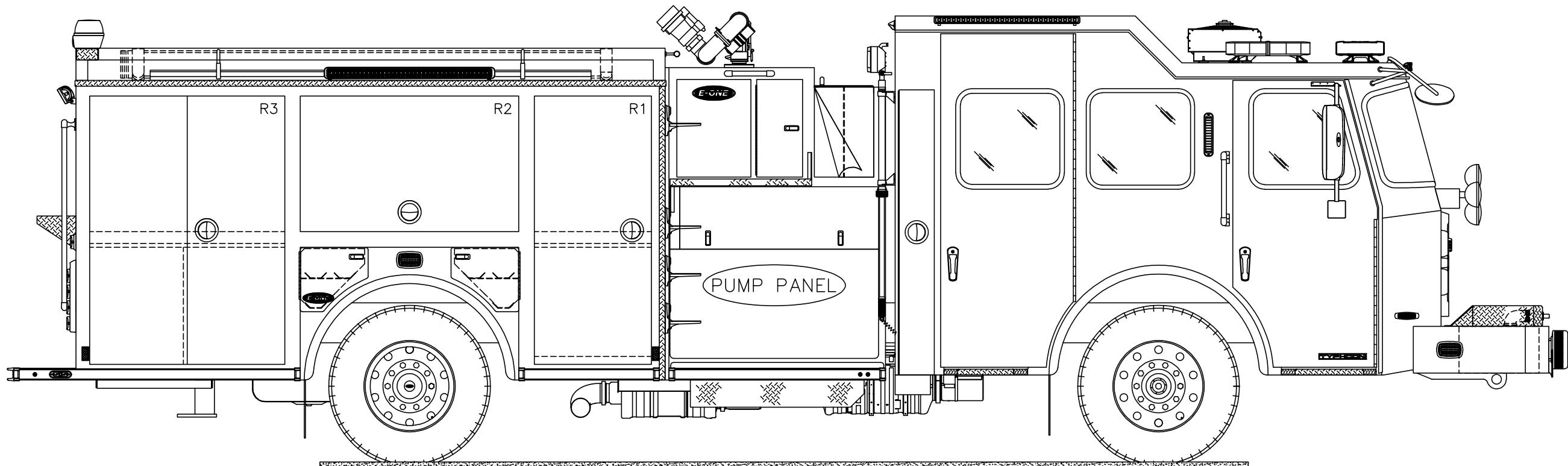
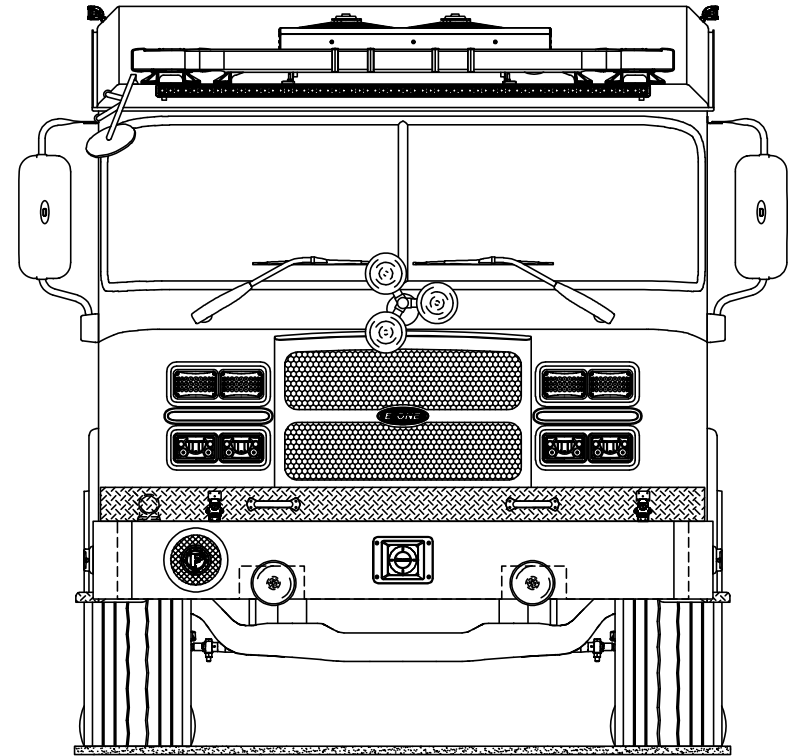


SOUTHERN SHORES FIRE DEPARTMENT
SOUTHERN SHORES, NC

Q150123
PUMPER
TYPHOON 4X2 CHASSIS

THIS DRAWING IS FOR REFERENCE PURPOSES. ALL DIMENSIONS ARE
SUBJECT TO MINOR VARIATIONS DUE TO MANUFACTURING PROCESSES.

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copied or submitted to third parties for use or examination.



FET EXEMPTION CERTIFICATE

DEALER NAME: FIRE CONNECTIONS	NAME: Southern Shores Fire Department
2520 N WESLEYAN BLVD	ADDRESS: 15 Dogwood Trail South
ROCKY MOUNT NC 27804	Southern Shores NC 27949
UNIT TYPE: Custom Typhoon Pumper	
CHECK ONE: COMMERCIAL CHASSIS	CUSTOM CHASSIS X

The sale is Exempt as:

- ☐ GVW (Gross Vehicle Weight) is **not** greater than 33,000 lbs.

Indicate GVWR _____
(Gross Vehicle Weight Rating)

- ☐ Sales to Dealers Registered for Tax Free Purchases

Dealer's Name _____
Registration # _____ **MUST BE COMPLETED**
A copy of the Dealer's Form 637 approved by IRS must be on file.

- ☐ Sale for Export (See Sec. 48.4221-3)

Proof of export Bill of Lading or other documentation must be on file.

- ☐ Certain U.S. Government Sales approved for tax exemption by Secretary of Treasury.

Approved letter must be obtained from purchaser.

- ☐ Sales to State and Local Governments, Municipalities or Volunteers (Sec. 4221 (a)(4)).

Purchaser must sign and execute:

I certify that I am _____ of _____

Name and Title

Purchasing Municipality

and that I am authorized to execute this certificate and that the vehicle described above will be purchased for the exclusive use of _____

Purchasing Municipalities

I understand that the exemption from tax in the case of sales of articles under this exemption certificate to State, etc. is limited to the sale of articles purchased for its exclusive use. I understand that the fraudulent use of this certificate for the purpose of securing this exemption will subject me and all parties making such fraudulent use of this certificate to a fine of not more than \$10,000, or to imprisonment for not more than 5 years, or both, together with costs of prosecution.

Signature _____

Address _____

This certificate applies to ☐ Body ☐ Chassis ☒ Both

Please attach signed tax form to the quote in portal and submit with purchase order.

FLORIDA SALES & USE TAX FORMS EXEMPTION CERTIFICATE

DEALER NAME: FIRE CONNECTIONS	NAME: Southern Shores Fire Department
2520 N WESLEYAN BLVD	ADDRESS: 15 Dogwood Trail South
ROCKY MOUNT NC 27804	Southern Shores NC 27949
UNIT TYPE: Custom Typhoon PUMPER	

The Sale is Exempt as:

- ☐ Sales to U.S. Government, Municipality or Florida Volunteer
(These agencies are exempted from tax under the provision Section 212.08 (6) F.S.
Submit Form DR-14 Consumer's Certificate of Exemption in not U.S. Government)
- ☐ Sales to Florida Dealer for Re-Sale
Dealer's Florida Sales Tax Registration # _____
(Submit copy of annual resale certificate)
- ☐ Sales to Non-Resident purchaser outside Florida or in state delivery to non-resident dealer or resale outside Florida - **Purchaser should sign and execute affidavit:**

Indicate Whether:

- ☐ Non-Resident Purchaser Dealer Sales Tax Registration # _____
- ☐ Non-Resident Dealer State of: _____
Home State Sales Tax No. _____

AFFIDAVIT

Authorized purchaser signature: _____ Date _____
Name and Title

Notarization

State of: _____

County of: _____

Before me, the undersigned, personally appeared the individual whose name and address is shown above, and after being duly sworn certified that he is a) the purchaser of the motor vehicle delivered outside the State of Florida, or b) dealer for re-sale outside of Florida and that the motor vehicle hereon will not be used in Florida under conditions which will subject said motor vehicle to the State of Florida sales or use tax.

Subscribed to and Sworn before me this _____ day of _____ 20 ____

Notary Public _____

Please attach signed tax form to the quote in portal and submit with purchase order.



NFPA Statement of Exceptions

Date: June 9, 2026

Customer: Southern Shores Fire Department

Address: 15 Dogwood Trail South =, Souther Shores NC 27949

Fire Chief / Authorized Agent: _____

Shop Order Number: _____

In accordance with NFPA 1900, 2024 Edition, Section 7.5.1.2 and 7.22, the following information is to specifically describe each aspect of the apparatus, as manufactured, which will not be fully compliant with the requirements of NFPA.

Check those items not compliant and note person(s) responsible to bring unit into compliance.

Non-Compliance	Responsible to complete
☐ Apparatus Body / Cab Striping (12.8.3)	<u>E-ONE</u>
☐ Rear Body Chevron Striping (12.8.3.2)	<u>E-ONE</u>
☐ Apparatus Equipment - Wheel Chocks (8.15)	<u>CUSTOMER</u>
☐ Apparatus Equipment - Road Safety Equipment (8.16 - 8.19) (Traffic Vests <u>and</u> Traffic Cones / Warning Devices)	<u>CUSTOMER</u>
☐ Method to Prevent Unintentional Hose Deployment (12.9.6)	<u>E-ONE</u>
☐ Droop Adapters for Non-Preconnected Discharges (13.7.7)	<u>E-ONE</u>
☐ Certification Test of Power Source for Dealer Installed Generator (21.15.7)	<u>N/A</u>
☐ Power Source Labeling (21.4.9)	<u>E-ONE</u>
☐ Foam System Installation and Testing for Dealer Installed Foam System (Chapter 18)	<u>N/A</u>
☐ _____	_____
☐ _____	_____
☐ _____	_____

As Agreed To:

E-ONE, Inc. Date

Dealer Date

Purchaser (Reference NFPA 1900, Section 7.22.2) Date



Fire Apparatus

One (1) Year or 24,000 Miles

General

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle (the "Product") manufactured by OEM. As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Product shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

One (1) Year or 24,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWNTIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

Except as excluded in this certificate, this Limited Warranty covers Product parts, components, and subsystems manufactured by OEM. Excluded from this Limited Warranty are (a) Third-Party Parts, as defined below, and (b) those parts, components and subsystems manufactured by OEM which are subject to separate OEM limited warranties such as, but not limited to, the Product's chassis, engine emissions system, electrical system, multiplex electronic system, frame, aerial device, hydraulic system, body structure, cab structure, paint system, and plumbing system.

If the Product is manufactured using a chassis provided by a Third-Party Parts manufacturer (i.e. a commercial chassis), this Limited Warranty shall not apply to the chassis. Instead, the Product's chassis will be covered by, and subject to, a separate limited warranty provided by that Third-Party Parts manufacturer.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.



Fire Apparatus

Ten (10) Years or 100,000 Miles

Cab Structure (Aluminum)

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Apparatus's chassis aluminum cab structure system (the "Product") shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Ten (10) Years or 100,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWNTIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers defects in the material and workmanship of the welded or bonded aluminum cab structural aspects of the Product. Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, the exterior coating, corrosion damage, electrical system, equipment mounting, doors, door hardware, glass, HVAC, switches, instruments, controls, seats, occupant protection, trim parts, upholstery, lighting, mounting components, fasteners or hardware.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.



Custom Chassis

Twenty Five (25) Years or 150,000 Miles

Frame Rail Corrosion (Zinc Plate and Powder Coat)

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Custom Chassis' Zinc plated and power coated chassis frame rail system (the "Product") shall be free from corrosion perforation, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Twenty Five (25) Years or 150,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWNTIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers repair or replacement of the zinc plated and powder coated frame rail system consisting of the frame rails, frame liners, or frame wrappers if they are found to have corrosion perforation.

As used in this Limited Warranty, corrosion perforation is defined as an actual hole through the piping material caused by corrosion.

Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, any frame component not zinc plated; parts, components and systems with evidence of alterations, cutting, splicing, welding or drilling of rails or flanges without the prior written authorization of the OEM; parts, components and subsystems where the Apparatus has been involved in an accident; and paint, undercoating, or other surface treatments.

As a condition to maintaining this Limited Warranty, the Purchaser must have the Apparatus inspected annually by an authorized OEM representative for damage to surface coatings of the frame including paint, plating, caulking and undercoating, and a written inspection report detailing the findings from each annual inspection must be forwarded to the OEM customer service department within 30 days of each inspection and any repairs. Failure to have damaged areas of the frame immediately repaired may void this Limited Warranty.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.



Fire Apparatus

Ten (10) Years or 100,000 Miles

Body Structure (Aluminum)

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Apparatus's aluminum body structure system (the "Product") shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Ten (10) Years or 100,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWNTIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers defects in the material and workmanship of the aluminum body structural components of the Product. Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, the exterior coating, graphics, corrosion damage, electrical system, lighting, equipment mounting, shelves, trays, compartment doors, hinges, trim parts, body mounting brackets, vibration isolators, fasteners or hardware.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.



Fire Apparatus

One (1) Year or 18,000 Miles

Electrical

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Apparatus's electrical system (the "Product") shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

One (1) Year or 18,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWNTIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers defects in the main wire harnesses and related circuit protection, connectors, routing, harness clamping, and wire protection of the Product. Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, electronic devices, lighting, bulbs, sirens, radios, intercoms, ECUs, gauges, switches, occupant protection airbags and pyrotechnics, electronically controlled valves, pressure governors, foam system controls, ABS, ESC, solenoids, and relays.

If the Product is manufactured using a chassis provided by a Third-Party Parts manufacturer (i.e. a commercial chassis), this Limited Warranty shall not apply to the chassis. Instead, the Product's chassis will be covered by, and subject to, a separate limited warranty provided by that Third-Party Parts manufacturer.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.



Custom Fire Chassis

Five (5) Years or 150,000 Miles

Regulated Emissions Systems

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a Custom Chassis (the "Product") manufactured by OEM for a fire apparatus vehicle (the "Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Apparatus for its intended purpose.

This Limited Warranty Covers:

This warranty applies to apparatus equipped with a Cummins L9 engine sold within the State of California.

The Product shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Five (5) Years or 150,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWNTIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers defects in material and workmanship that effect emissions performance in the following components of the Product:
Air Handling System and Associated Plumbing: Ambient Air Temperature Sensor; Charge Air Cooler and plumbing to the HC Doser
Compressor Air System and Associated Plumbing: HC Doser Pressure Regulator/Protection Valve and plumbing to the HC Doser
Engine harness circuits connected at both ends to emissions components.
Exhaust gas piping from turbocharger out to the last aftertreatment device.
Exhaust Aftertreatment: Urea Quality Sensor; Urea level sensor; Urea Tank and lines; Urea Tank/line heating elements or heat exchanger and pipe; Urea temperature sensors; Tank Heater Coolant Control Valve; Line Heater Control Relay
Electronics: On Board Diagnostic (OBD) Malfunction Indicator Lamp (MIL); Diesel Exhaust Fluid (DEF) Lamp; OBD Connector
Air conditioning system leaks for 5 years or 100,000 miles

The tires supplied with this vehicle are warranted to be free of emissions related defects for 2 years or 24,000 miles.

This limited warranty remains in effect so long as the vehicle emissions-related systems are properly maintained in accordance with the operator manual(s) and as described in 40 CFR 1068.115.

Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, engine emissions related parts that are warranted by the engine manufacturer.

If the Product is manufactured using a chassis provided by a Third-Party Parts manufacturer (i.e. a commercial chassis), this Limited Warranty shall not apply to the chassis. Instead, the Product's chassis will be covered by, and subject to, a separate limited warranty provided by that Third-Party Parts manufacturer.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.



Fire Apparatus

Ten (10) Years or 100,000 Miles

Plumbing and Piping (Stainless Steel)

Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Apparatus's stainless steel fire suppression plumbing and piping system (the "Product") shall be free from defects in material and workmanship, under normal use and maintenance, for the warranty period described below in this certificate. Also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding the parts and components covered by this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Ten (10) Years or 100,000 Miles

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWNTIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers defects in the material and workmanship of the stainless steel fire suppression pipes and associated joints for intake and discharge lines of the Product. Parts, components and subsystems excluded from this Limited Warranty include, but are not limited to, the exterior coatings, electrical system, pump and pump accessories, valves, monitors, light towers, generators, gauges, hoses, trim parts, fasteners or hardware.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.



Fire Apparatus Ten (10) Years Paint and Finish (Exterior Clear coated) Limited Warranty

Subject to the provisions, limitations, and exclusions set forth in this certificate, E-one, Inc. ("OEM") extends the following Limited Warranty to the Purchaser of a fire apparatus vehicle manufactured by OEM (the Apparatus"). As used herein, "Purchaser" means that person or entity which purchases and commences first commercial use of the Product for its intended purpose.

This Limited Warranty Covers:

The Apparatus's OEM-applied exterior coating and finishing system (the "Product") shall be free from the paint system adhesion defects listed in the Section herein entitled "Specific Exclusions and Conditions", under normal use and maintenance, for the warranty period described here.

Limited Warranty coverage schedule:

Basecoat/Clear Coat	Corrosion
0-120 Months: 100%	0-24 Months or 100,000 Miles: 100%
	25-48 Months or 100,000 Miles: 50%

If the Product is manufactured using a chassis provided by a Third-Party Parts manufacturer (i.e. a commercial chassis), this Limited Warranty shall not apply to the chassis. Instead, the Product's chassis will be covered by, and subject to, a separate limited warranty provided by that Third-Party Parts manufacturer. In addition, also see the Section herein entitled "Specific Exclusions and Conditions" for more details regarding this Limited Warranty.

This Limited Warranty Coverage will Begin:

The date the Product is placed into service by the Purchaser or thirty (30) days after the date of the Product invoice to the Purchaser, whichever comes first.

This Limited Warranty Coverage Ends After the First Occurrence of:

Ten (10) Years

Who is Covered by this Limited Warranty: This Limited Warranty only applies to Purchaser and, unless required by applicable law, may not be assigned or transferred to any other person or entity without OEM's prior written authorization. This Limited Warranty is valid only in the country in which the Product is first sold.

How to Obtain Warranty Service: See the Operator Manual(s) for instructions on how to register the Product, to obtain warranty repair authorization and service, and to make arrangements for the Product to be transported to an OEM-authorized service facility for warranty service. All warranty service and towing must be authorized by an OEM customer service representative before any warranty or towing service is performed. OEM shall not be responsible for, or reimburse Purchaser for, any costs or expenses relating to unauthorized warranty service or towing. Purchaser must notify OEM or its authorized customer service representative as soon as possible after discovery of any defect with the Product but in no event more than ten (10) days after discovery.

Exclusive Remedy: OEM will, at its option, repair or replace the Product if it is defective in materials or workmanship during the warranty period stated above and covered by this Limited Warranty. Such repair or replacement may be performed at an OEM facility or by an OEM-authorized service facility. Any repaired or replaced Product shall be warranted only for the remainder of the warranty period applicable to the original Product. THIS PARAGRAPH CONTAINS OEM'S SOLE OBLIGATION AND PURCHASER'S EXCLUSIVE REMEDIES FOR ANY DEFECTIVE PRODUCT COVERED BY THIS LIMITED WARRANTY.

Third Party Representations: No person or entity is authorized to create any other warranty, obligation or liability in connection with the Product, and OEM is not responsible for any representation, promise or warranty made by any person, dealer, component manufacturer, vehicle manufacturer, or other entity beyond what is expressly stated in this Limited Warranty.

Disclaimer of Other Warranties: THIS LIMITED WARRANTY IS OEM'S SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCT. EXCEPT FOR THE LIMITED WARRANTIES STATED IN THIS CERTIFICATE, OEM MAKES NO OTHER EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES WHATSOEVER REGARDING THE PRODUCT INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW, SUCH WARRANTIES ARE EXPRESSLY LIMITED TO THE DURATION OF THE EXPRESS WARRANTY STATED IN THIS CERTIFICATE.

Limitation of Liability:

IN NO EVENT SHALL OEM BE LIABLE TO PURCHASER OR ANY THIRD PARTY FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, ENHANCED, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THE PRODUCT OR OTHERWISE (INCLUDING, WITHOUT LIMITATION, LOST REVENUE, LOST PROFITS, LOSS OF OPPORTUNITIES, LOSS OF USE, DOWN TIME, DIMINUTION IN VALUE, COST OF ALTERNATIVE TRANSPORTATION, INCONVENIENCE, COST OF LODGING, VEHICLE RENTAL EXPENSES, LABOR CHARGES, EQUIPMENT RENTAL CHARGES OR OTHER ECONOMIC LOSSES), WHETHER IN AN ACTION IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF OEM HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES. FURTHER, OEM'S LIABILITY FOR ANY AND ALL WARRANTY CLAIMS HEREUNDER SHALL BE LIMITED TO THE PURCHASE PRICE OF THE PRODUCT.

Specific Exclusions and Conditions

This Limited Warranty only covers defects in the following aspects of the Product:

- Loss of adhesion of the Product resulting in rusting less than Rust Grade 5 as in ASTM D 610-08.
 - Cracking of the Paint System as set forth in ASTM D 661-93.
 - Excessive loss of gloss caused by cracking, checking, and hazing.
 - Scab corrosion, and corrosion under the paint film, where the point of origin is not: (a) A breach of the coating that occurred because of damage to the paint system, (b) Corrosion originating from a crevice, or (c) Dissimilar metals
 - Chemical Resistance meet ASTM D1308 standards 25 MEK double rubs.
 - Stone Chip SAE J400 Method A – 4B or above.
- Damage or Defects excluded from this Limited Warranty include, but are not limited to:
- Use of cleaning products not prescribed in the apparatus operator manual(s).
 - Exposure to corrosive agents, acid rain, chemical fallout.
 - Heavy-duty pressure washing or aggressive mechanical wash systems.
 - Paint deterioration caused by abuse, accidents, scratches, chips, or bruises.
 - Paint or coatings on the vehicle's undercarriage or interior.
 - Applied or painted graphics, reflective material or gold leaf.
 - Paints or coatings of supplier parts including roller shutter doors.
 - Mechanical abrasion or external foreign object damage.
 - Application of, or removal of, stickers or decals including replacement.
 - Body compartment interior coatings, undercarriage and frame.
 - Defects resulting from or inherent to application such as runs, orange peel, and fisheyes.
 - Defects caused by acid rain and industrial fallout.

General Exclusions and Conditions; What This Limited Warranty Does Not Cover:

The Product may incorporate subsystems, assemblies, parts, components, and other items manufactured by third-party manufacturers which may include, but are not limited to, chassis, engine and emissions system, transmission, transfer case, axles, suspensions, water pumps, monitors, valves, foam systems, aerial devices (each, a "Third-Party Part" and collectively, the "Third-Party Parts"). OEM does not warrant Third-Party Parts. Defects in materials and workmanship related to Third-Party Parts that carry their own warranty are subject to that warranty. OEM hereby assigns to Purchaser any assignable warranty applicable to the Third-Party Parts. The previous sentence is OEM's sole obligation with respect to Third-Party Parts.

This Limited Warranty does not apply to, and OEM shall have no responsibility or liability for, any claim, loss or damage resulting from or caused by any of the following: (a) normal wear and tear; (b) misuse, carelessness, abuse or neglect (e.g. overloading, driving over curbs or exposure to corrosive or flooded environments); (c) improper handling, storage or repairs; (d) use of the Product other than for its intended purpose; (e) collision, fire, theft, vandalism; (f) weather, freezing, flooding, acts of God, or other casualties; (g) exposure to salt, acids, corrosive agents or other damaging chemicals or materials; (h) components or systems, whether new or used, provided by Purchaser and installed at its request; (i) when the odometer or hour meter is disconnected, or its reading has been altered, or actual mileage or hours cannot be determined; (j) improper maintenance or use including, but not limited to, failure to follow the required or recommended maintenance schedules, failure to maintain operating parameters, and failure to follow operating instructions; (k) any Third-Party Parts; (l) additions or accessories not originally installed by OEM, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessories; (m) any "aftermarket" devices installed on the Product; (n) the repair or modification of any existing part, component or subsystem originally installed by OEM without its prior express written authorization and any problems resulting from such repair or modification. Further, this Limited Warranty shall be null and void if the Product is ever leased or rented, whether or not for compensation, to another person or entity.

Miscellaneous Terms:

OEM reserves the right to make changes to the Product without incurring any obligation to modify or improve previously manufactured parts or products. Further, OEM may respond to or correct any issue or complaint for which it does not otherwise have responsibility under this Limited Warranty without becoming obligated to respond to or correct any future issue or complaint of a same or similar nature, and such response or correction shall not constitute an admission of warranty coverage or impose any additional obligations on OEM.