



TOWN OF DEERING

Board of Selectmen

762 Deering Center Road
Deering, NH 03244

Meeting Minutes December 18, 2018

Selectmen present: Aaron Gill, Allen Belouin

Absent - John Shaw

The meeting was called to order at 1900.

MEETING MINUTES:

Meeting Minutes – December 5th.

Mr. Gill made the motion to approve the meeting minutes of December 5th. Mr. Belouin seconded the motion. The vote was unanimous and so moved.

New Business

Tim Finn – Conservation Commission Appointment

Mr. Gill explained that a recent resignation on the Conservation Commission necessitated the appointment of a full member to serve out the current term. Mr. Gill made the motion to appoint Tim Finn as a full member. Mr. Belouin seconded the motion. The vote was unanimous and so moved. The current appointment expires in March of 2020.

Fire Department – Review of new truck specifications & price quotes

The TA explained that because of a scheduling conflict Fire Chief Gorman was unable to attend though he did provide quotes from two vendors for the proposed truck (see attached). Mr. Gill noted that there were no costs included in the quotes. Rather, it appeared that the quotes were truck specifications. Gale Lalmond explained that the budget advisory committee had not seen any fire department specifications for the truck or any costs and associated quotes. Stephen Fogleson, also of the budget advisory committee, noted that he was interested in understanding if the current truck's utilization matched the new truck's specifications. Given the absence of specifications and costs Ms. Lalmond explained that it was not possible for the budget committee to support the new truck acquisition at this point in time. Board members acknowledged that it was both late in the budget process to be unaware of the particulars and that there was also a need to replace the 1986 truck. Without knowing anything about the proposed new truck or its costs it remained very difficult to support. Mr. Gill explained the necessity of replacing a 1986 vehicle with a standard transmission that only a few people on the fire department can drive. What a new truck should be equipped with and what it will cost still needs careful review. Board members agreed that scheduling a public hearing to borrow money to purchase a new truck was prudent, but review of the truck specifications and costs is necessary before any purchase decision can be made.

Budget & Warrant Article Review

The Board reviewed a draft Town Warrant and the attendant budget (see attached). The table below illustrates expenditures and revenues by component. The 2019 operating budget of \$2,105,920 increased \$26,543 from the 2018 operating budget of \$2,079,377.

	Expenditures	Revenues	Source
Operating Budget	\$ 2,105,920.19	\$ 590,000.00	Own Source
CIP Budget	\$ 325,750.00	\$ 50,000.00	UFB
WA #3 Fire Truck	\$ 550,000.00	\$ 550,000.00	CRF/Loan
WA #6 Pave Parking Lot	\$ 30,000.00	\$ 30,000.00	UFB
WA #8 Solar Energy ETF	\$ 15,640.00	\$ 15,640.00	UFB
WA #9 TC Full Time	\$ 10,729.00	\$ -	Tax
Total	\$ 3,038,039.19	\$ 1,235,640.00	\$ 1,802,399.19

The 2019 funding amount of \$325,750 for the CIP (capital improvement plan) has decreased by \$78,300 from the 2018 funding level of \$404,050. Funding requests for individual warrant articles in 2019 totals \$606,369 versus 2018 individual warrant articles funding of \$79,740. Without the cost of a new fire truck (\$550,000) total requested funding is \$56,369. The Board reviewed and suggested a few tweaks to the CIP funding including providing an additional \$9,000 for the Highway Building ETF.

Ordinances Review – 2nd Reading & Review

Given the absence of Mr. John Shaw Board members decided to wait until Mr. Shaw returned to take up the issue.

Other – Citizen Petitioned Warrant Article

Ms. Genera Clay of 475 Old County Road presented a petitioned warrant article seeking to have Little Free Pantry boxes located on Town owned property (see attached). The TA suggested that Ms. Clay meet with the Town Clerk to have the petition signatures reviewed to insure they were all registered voters.

TO BE REVIEWED AND/OR SIGNED:

- Employee Payroll	<u>December 12th</u>
	\$18,422.28
- Employee Payroll	<u>December 19th</u>
	\$13,557.76
- Fire Department Payroll	<u>December 19th</u>
	\$5,171.92
- AP ACH XFER	<u>December 18th</u>
	\$58.00
- AP Manifest	<u>December 18th</u>
	\$ 96,539.61
- Tax Refunds 206-015-023	\$ 12.00
208-011-061	\$ 130.00
204-019-000	\$8,935.00

Non-Public Session - RSA 91-A:3 II (a)

Mr. Belouin made the motion to enter non-public session under RSA 91-A :3 II (a) to review employee performance. Mr. Gill seconded the motion. The vote was unanimous and so moved.

The Board convened the non-public session at 2013.

The Board reconvened in public session at 2025.

There being no further business to come before the Board Mr. Gill made the motion to adjourn. Mr. Belouin seconded the motion. The vote was unanimous and so moved. The meeting adjourned at 2025.

Respectfully Submitted,

\s\ Russell McAllister
Town Administrator

Customer: DEERING FIRE DEPARTMENT

TESTING COMPLIANCE STANDARD

Hose Bed Capacity

Hose bed hose load allowance on the apparatus shall be 1200 lbs.

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 1901, 2016 edition.

Equipment Capacity

Equipment allowance on the apparatus shall be 1000 lbs. This allowance is in addition to the weight of the hoses and ground ladders listed in the shop order as applicable.

BUMPERS

Front Bumper

The vehicle shall be equipped with a one-piece 10" high bumper made from 10 gauge (0.135" nominal) polished stainless steel for corrosion resistance, strength, and long lasting appearance. It shall be mounted directly to the front frame extensions for maximum strength. The bumper shall incorporate two (2) stiffening ribs.

Front Bumper Extension

The bumper shall be extended approximately 20" from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16" (.375") aluminum tread plate material.

BUMPER TRAYS

Lid, Bumper Hose Tray

The center bumper tray shall have a diamond plate lid. The lid shall be hinged and include a latch, rubber seal and held open with a pneumatic shock.

Bumper Tray - Center

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 12" deep (11" to the top of the slats). One inch thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray.

Hose Tray Lid Notch

The front bumper hose tray lid shall be notched to allow for preconnected hose.

The notch shall be: 4" front to rear x 3" side to side centered on driver side of center tray lid.

FRAME ASSEMBLY

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 apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship. Warranties that provide a lifetime warranty for only the frame rails, but not the cross-members, are not acceptable. NO EXCEPTIONS.

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.

Frame Liner

A 9-3/8" x 3-1/8" x 3/8" channel frame liner shall be bolted to each frame rail for added strength and rigidity. Frame liners shall be made of 110,000 psi minimum yield, high strength, low alloy steel. The frame rail liners 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.

Each frame rail with liner shall have the following minimum characteristics:

Section Modulus: 28.74 cu. in.

RBM: 3,161,400 in. lbs.

The frame liners shall be inserted inside the open portion of the frame rails and shall run continuously from the rear of the frame to the centerline of the front axle to provide maximum frame strength at all critical load points.

Galvanized Frame Components

The front chassis frame extensions, rear subframe (If equipped), crossmembers and battery brackets shall be hot-dip galvanized for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

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-941 front axle with a rated capacity of 18,700 lbs. It shall have "easy steer" knuckle pin bushings and 68.5" 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 3 leaf, progressive rate with bronze bushings and a capacity of 20,000 lbs. at the ground.

Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.

The vehicle shall be equipped with a Sheppard model M-110 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 18,700 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.

Rear Axle

The vehicle shall utilize an Meritor RS-30-185, 31,000 lb. single rear axle with single reduction hypoid gearing and a manufacturer's rated capacity of 31,000 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 use.

Driver Controlled Differential

A Rockwell driver controlled main differential lock shall be supplied. Operated from within the cab, it reduces wheel spin-outs by transferring power from the slipping wheel to the wheel with traction. An indicator shall be provided visible to the driver to show when the lock is engaged.

When used in a tandem axle application, the DCDL will be installed on the rear/rear axle only.

SUSPENSIONS

Rear Suspension

The rear suspension shall be a Reyco model 79KB. The suspension shall include linear-rate slipper type leaf springs that eliminate spring eyes and shackles. The suspension shall also include one (1) fixed torque arm, one (1) adjustable torque arm and cast spring hangers. The suspension shall be rated for the maximum axle capacity.

WHEEL OPTIONS

Front Wheel Trim Package

The front wheels shall have stainless steel lug nut covers (for use with aluminum wheels) or chrome plated plastic (for use with steel wheels). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless steel baby moons shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers.

Rear Wheel Trim Package, Single Axle

The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) high hats and twenty (20) lug nut covers.

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.

TIRE OPTIONS

Front Tires

The front tires shall be two (2) Michelin 385/65R22.5 tubeless type 18 PR radial tires with XZY3 Wide Base aggressive tread.

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

18,740 lbs. @ 65 MPH (steel or aluminum wheels)

18,740 @ 75 MPH (steel or aluminum wheels with intermittent fire service rating)

Up to 20,000 @ 65 MPH (steel or aluminum wheels with intermittent fire service rating)

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

Rear Tires

The rear tires shall be Michelin 315R22.5 tubeless type radial tires with XDN2 GRIP all weather tread.

The tires with wheels shall have the following weight capacity:

33,080 lbs. (dual) @ 75 MPH. (Intermittent fire service max load 35,396 lbs)

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 ArvinMeritor 16-1/2" x 6" S-cam brakes with ArvinMeritor automatic slack adjusters.

A 3-year/unlimited miles parts and 3-year labor front brake warranty shall be provided as standard by ArvinMeritor Automotive.

Warranty shall include bushings, seals, and cams.

Rear Brakes

The rear axle shall be equipped with ArvinMeritor 16-1/2" x 7" S-cam brakes with cast brake drums. Q-Plus shoes shall be provided with up to 24,000 lb. axle ratings and P-Type shoes with over 24,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RS-24-160 and RS-25-160 axles, and Haldex brand shall be supplied on RS-26-185 and RS-30-185 axles.

A 3 year/unlimited miles parts and 3 year labor rear brake warranty shall be provided as standard by ArvinMeritor Automotive. The warranty shall include bushings, seals, and cams.

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.

Two (2) air pressure needle gauges, one (1) each for front and rear air pressure, with a warning light and buzzer shall be installed at the driver's instrument panel.

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.

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 lower dash panel 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.

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 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.

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 and or customer/dealer supplied 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 Grover 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 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

Electronic speed limiting set at 60 MPH as required by NFPA 1901.

Engine/Transmission Package

Engine

The vehicle shall utilize a Cummins L9 engine as described below:

- 450 maximum horsepower at 2100 rpm
- 1250 lb-ft peak torque at 1400 rpm
- Six (6) cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. (8.9 liter) displacement - 4.49 in bore x 5.69 in stroke
- 16.6:1 compression ratio
- Viable Geometry Turbocharged
- Engine shall be equipped with Full-Authority Electronics
- Electronic Timing Control fuel system
- Fuel cooler (when equipped with a fire pump)
- Fleetguard FS1022 fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for use on the ISL engine
- Fleetguard LF9009 Venturi Combo combination full-flow/by-pass oil filter approved by Cummins for use on the ISL engine
- Engine lubrication system, including filter, shall have a minimum capacity of 25 quarts
- Delco-Remy 39 MT-HD 12-volt starter
- Cummins 18.7 cubic foot per minute (cfm) air compressor
- Corrosion inhibitor additive for coolant system
- After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyist reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2017 EPA Emission standards

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. The intake piping clamps shall be heavy-duty, constant-torque, T-bolt style to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The air cleaner shall be an 11" diameter K&N for lower restriction and high air flow. The filtration media shall be washable and easily accessed for service. The air filter shall have a 3 year / 300,000 mile warranty.

The engine exhaust piping shall be a minimum of 4" diameter welded stainless steel tubing. The aftertreatment system shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

A 5-year/100,000-miles parts and labor warranty shall be provided as standard by Cummins.

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

Transmission

The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.

A push button shift module shall be located 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 that are clearly visible to the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.

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.

The transmission shall have a gross input torque rating of 1250 lb.-ft. and a gross input power rating of 450 HP.

The gear ratios shall be as follows:

1 - 3.49

2 - 1.86

3 - 1.41

4 - 1.00

5 - .75

R - 5.03

The transmission shall have an oil capacity of 23 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant air flow, are not acceptable.

The transmission shall be provided with two (2) engine-driven PTO openings located at the 4 o'clock and 8 o'clock positions for flexibility in installing pto-driven equipment.

The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the pump. The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.

A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison Transmission.

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

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.

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.

COOLING PACKAGE

Engine Cooling Package

Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

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.

Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

Fan/Shroud

The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.

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.

ALTERNATOR

320 Amp Alternator

There shall be a 320 amp Leece Neville alternator installed as specified. The alternator shall be a Leece Neville 4890JB series brushless type with integral rectifier and adjustable voltage regulator with an output of 272 amps per NFPA 1901 rating (320 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.

CHASSIS OPTIONS

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature and / or the water pump is engaged (if equipped).

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.

Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1710HD 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.

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.

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 Medium

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.

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 sub frame. 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 sub frame 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 sub frame 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 sub frame 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 sub frame 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 cross member 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 sub frame 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 tread plate 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 sub frame 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 130" long to allow sufficient room in the occupant compartment for up to eight (8) 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 58".

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.

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 2,700-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.

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, 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 sub frame 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 rear portion of the engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall consist of 3/4" dual density fiberglass composite panels with foil backing manufactured to specifically fit the engine cover without modification to eliminate "sagging" as found with foam insulation. The insulation shall meet or exceed DOT standard MVSS 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.

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 fender well.

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.

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 20" deep x 12" wide x 3.5" high and the officer side compartment shall be approximately 14" deep x 12" wide x 11" high (height will be reduced with air or electric seat). Note: With RollTek option the compartments may be occupied by air bag system components.

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear cab steps shall be a minimum 12" deep x 21" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear steps shall incorporate intermediate steps for easy access to the cab. The steps are to be located inside the doorsill, where they are protected against mud, snow, ice, and weather. 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

There shall be reflective signs on each cab door in compliance with all NFPA requirements.

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 71.5" high, and the rear cab door openings shall be approximately 33.75" wide x 73" high. The front doors shall open approximately 75 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.

Stainless steel 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 front door windows shall provide a minimum viewing area of 530 sq. in. each. The rear door windows shall provide a minimum viewing area of 500 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Instruments and Controls

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. 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 28", and the blade length approximately 20". Each arm shall have a 70 degree sweep for full coverage of the windshield.

Cab controls shall be located on the cab instrument panel in the dashboard on the driver's side where they are clearly visible and easily reachable. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Master battery switch/ignition switch (rocker with integral indicator)
- Starter switch/engine stop switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch with dimmer switch
- Self-canceling turn signal control with indicators
- Windshield wiper switch with intermittent control and washer control
- Master warning light switch
- Transmission oil temperature gauge
- Air filter restriction indicator
- Pump shift control with green "pump in gear" and "o.k. to pump" indicator lights
- Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Cab ajar warning light on the message center enunciator

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.

Fast Idle System

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

Electrical System

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area. 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.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall activate with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

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.

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.

CAB BADGE PACKAGE

Logo Package

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

GRILLE

GRILLE, ABS CHROME

The front cooling air intake grille shall be constructed of stainless steel mesh and supported by an impact-resistant chrome plated ABS frame providing no less than 81% open area for excellent cooling performance.

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 Front Door Windows

Driver and officer door windows shall have the support pillar located toward the front of the window. There shall be a vent that can be opened and closed within the window itself, located towards the front.

Rear Cab Door Windows

The rear cab door windows shall be manually operated to raise and lower.

Cab Front Windows

The front windows of the cab shall have manual actuation.

Cab Door Locks

Each cab door shall have a manual operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a barrel style keyed lock below the cab door handle.

Cab Door Locks

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

Cab Door Panels

The inner cab door panels shall be made from thermoformed, non-metallic, non-fiber ABS material for increased durability and sound deadening. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

Cab Door Exterior Latches

All cab doors shall have "L" style exterior door latches.

Cab Door Kick Plates

All cab doors shall have diamond plate aluminum kick plates installed on the interior lower portion of the doors.

Cab Door Reflective Material

Reflective Red/Lemon Yellow material striping shall be supplied on each of the cab doors. The stripes shall be angled from the lower outer corner to the upper inside corner, forming an "A" shape when viewed from the rear. The reflective material shall be at least 96 square inches to meet NFPA 1901 requirements.

Cab Door Area Lighting

There shall be four (4) clear TecNiq model T440 4" circular LED lights provided to illuminate the cab step well area. Each light shall be mounted in a resilient shock absorbent grommet and be located on each cab door in the inboard position. Each light shall be activated by the cab door ajar circuit.

MIRRORS

Cab Mirrors

Two (2) Velvac model 2010 heated, remote controlled, stainless steel mirrors shall be installed. The west coast style mirrors shall consist of a large 7" x 16" flat and 4" x 6" wide angle convex with stainless steel break-away mounts. The adjustment of the main sections of the mirror and the heater control shall be through switches accessible to the driver.

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:

- 44" C/A cab (short cab): 16"W x 24.5"H
- 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:

- 44" C/A cab (short cab): 16"W x 24.5"H

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

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.

Handrails

Cab door assist handrails shall consist of two (2) 1.25" diameter x 36" long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear 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.

Rear Cab Wall Construction

The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions.

Receptacle Mounting Plate

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator.

HVAC

Air Conditioning

An overhead air-conditioner / heater system with a single radiator 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 ten (10) comfort discharge louvers, four (4) to the back area of the cab and six (6) to the front. These louvers will be used for AC and heat 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.

The control panel shall actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve. A three-speed blower switch shall control air speed.

The condenser shall be radiator mounted and have a minimum capacity of 65,000 BTU's 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.

Heat, Supplemental

A single 40,000 BTU water heater shall be supplied in the front area of the cab. The unit shall heat the lower section of the driver's and officer's footwell.

Dual 23,000 BTU water heaters with diamond plate covers shall be supplied in the rear of the cab to heat the rear cab lower section.

Dual climate control will be achieved via dual switches installed on a front instrument panel. On units with optional multiplex display climate control, the floor heaters shall be controlled through the HVAC screen in the display.

HVAC Control Location

Heating and air conditioning controls shall be located in the center dash area.

SEATS

Seating

All seats shall be Seats, Inc. 911 brand.

Seat, Driver

Seats, Inc. 911 air suspension seat shall be supplied for the driver's position.

Features shall include:

- Universal styling
- High back seat back
- Low profile air suspension assembly with rubber accordion cover
- Weight, height and ride adjustment
- Built-in back and lumbar adjustment
- 4" fore and aft adjustment

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Officer

One (1) Seats, Inc. 911 Air Suspension Universal SCBA seat shall be supplied for the front officer's position.

Features shall include:

- Universal styling
- Easy exit, flip up split headrest for improved exit with SCBA.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Rear Facing

One (1) Seats, Inc. 911 Universal SCBA seat shall be provided in the rear facing position over the driver side wheel well.

Features shall include:

- Universal styling.
- High back seat back.
- Easy exit, flip up, and split headrest for improved exit with SCBA.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Rear Facing

One (1) Seats, Inc. 911 Universal SCBA seat shall be provided in the rear facing position over the officer side wheel well.

Features shall include:

- Universal styling.
- High back seat back.
- Easy exit, flip up, and split headrest for improved exit with SCBA.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat Fabric Color

All seats shall be gray in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of four (4) personnel shall be provided.

Seat Cover Material

All seats shall have Turnout Tuff seat cover material.

MISC INTERIOR CAB OPTIONS

Cab Interior Color

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be gray.

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.

Air Horn Lanyard

There shall be a "Y" style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.

Cab Dash

All surfaces subject to repeated contact and wear -- the center and officer side dash, windshield "A" post covers and lower front kick panels -- shall be covered with thermoformed, non-metallic, non-fiber trim pieces to provide excellent scuff and abrasion resistance, as well as chemical stain resistance. The thermoformed material shall comply with Federal Motor Vehicle Safety Standard (FMVSS) 302 for flammability of interior materials.

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.

Overhead Console

A full-width front overhead console shall be mounted to the cab ceiling for placement of siren/radio heads (non-LTH cabs only) and for warning light switches. The console shall be made from a thermoformed, non-metallic material and shall have easily removable mounting plates.

The overhead HVAC shall be covered with thermoformed, non-metallic, non-fiber trim pieces to provide excellent scuff and abrasion resistance, as well as chemical stain resistance. The thermoformed material shall comply with Federal Motor Vehicle Safety Standard (FMVSS) 302 for flammability of interior materials.

Rear Engine Cover

The rear engine cover shall be provided with a stepped profile for use with rear engine cover options and/or mounting of equipment on the cover.

CAB ELECTRICAL OPTIONS

Cab Dome Lights

A Weldon LED dome light assembly with one (1) white lens and one (1) red lens and plastic housing shall be installed. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only. There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.

Battery Charger Receptacle

A 20 amp battery charger receptacle shall be installed in the specified location.

The receptacle shall be located outside driver's door next to handrail.

The cover color shall be Yellow.

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.

English Dominant Gauge Cluster

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Voltmeter
- Transmission oil temperature gauge

This panel shall be backlit for increased visibility during day and night time operations.

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. The headlights shall be day time operational.

12 Volt (or 24 Volt) Outlet

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

Cab Tilt Interlock

An interlock shall be provided to prevent tilting the cab unless the front intake is positioned to prevent interference.

Battery Charger Location

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

Battery Charger

An E-ONE LPC 20 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, 7 amp AC input with an output of 20 amps 12 volts DC. 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 two (2) LED lights 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 Headlights

The quad cab headlight bezels shall contain rectangular sealed beam halogen lights.

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 Turn Signals

There shall be a pair of TecNiq model K60 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted upper headlight bezel and wired with weatherproof connectors.

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 six (6) 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 two (2) compartments located ahead of the rear wheels.

The forward compartment shall be approximately 48" wide x 34" high x 26" deep. The compartment shall contain approximately 25 cu. ft. of combined storage space. The door opening shall be approximately 48" wide x 36" high.

The rearward compartment shall be approximately 30" wide x 34" high x 26" deep. The compartment shall contain approximately 16 cu. ft. of combined storage space. The door opening shall be approximately 30" wide x 36" high.

There shall be one (1) compartment located behind the rear wheels.

The compartment shall be approximately 24" wide x 34" high x 26" deep. The compartment shall contain approximately 12.5 cu. ft. of combined storage space. The door opening shall be approximately 24" wide x 36" high.

There shall be three (3) upper compartments located over the lower compartments. Each compartment shall be approximately 54" wide x 34.75" high x 12" deep and contain approximately 13 cu. ft. of storage space. Each compartment opening shall be approximately 54" wide x 34.75" high.

All three (3) upper compartments shall be transverse front to rear.

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 six (6) 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 two (2) compartments located ahead of the rear wheels.

The forward compartment shall be approximately 48" wide x 36" high x 26" deep. The compartment shall contain approximately 26 cu. ft. of combined storage space. The door opening shall be approximately 48" wide x 36" high.

The rearward compartment shall be approximately 30" wide x 36" high x 26" deep. The compartment shall contain approximately 16.25 cu. ft. of combined storage space. The door opening shall be approximately 30" wide x 36" high.

There shall be one (1) compartment located behind the rear wheels.

The compartment shall be approximately 24" wide x 36" high x 26" deep. The compartment shall contain approximately 13 cu. ft. of combined storage space. The door opening shall be approximately 24" wide x 36" high.

There shall be three (3) upper compartments located over the lower compartments. Each compartment shall be approximately 54" wide x 34.75" high x 12" deep and contain approximately 13 cu. ft. of storage space. Each compartment opening shall be approximately 54" wide x 34.75" high.

All three (3) upper compartments shall be transverse front to rear.

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. The compartment top shall be removable for easy access to the main body wiring harness.

BODY COMPT REAR

Rear End Assembly

The rear end shall be set-up as a tanker and shall have no rear body compartment.

The rear end shall be constructed of vertical and horizontal extrusions with interlocking smooth plate upper and lower panels. The lower center area shall have a smooth plate panel area that shall allow for a Jet or Newton tank dumping application.

A storage access door shall be provided in the upper area for access to items stored through the water tank. The door shall be smooth plate and shall include latching for securing the door in the closed position. The door shall be wired to the door ajar indicator light located in the cab.

The vertical, horizontal, and smooth plate panels shall have a sanded finish.

Tailboard

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 18" 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.

Beavertails

Two (2) 11.25" deep and squared off beavertails shall be provided at the rear of the body. The beavertails shall be a part of the body framework and provide additional support to the tailboard. Each beavertail shall be constructed of formed 1/8" (0.125") aluminum treadplate and includes removable outside panels for access to internal wiring and bolt-on accessories.

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 vertical on the trailing edge of the body and appropriately sized handrail(s) mounted horizontal 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. 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 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(s) shall be installed in the following location(s): L2, L3, R2, R3

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.

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): L4, L5, L6, R4, R5

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 smooth plate. 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.

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 chain 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): R6

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 90-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.

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): L1, R1

COVERS

Hose Bed Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with heavy duty Velcro strips running the length of the hose bed. The rear of the cover shall have an integral flap that extends down to cover the rear of the hose bed. This flap shall be secured in place along the lower edge with flexible cord that fasten to steel hook(s) mounted to body to comply with the latest edition of NFPA 1901.

Vinyl Crosslay Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed on the crosslay. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch.

The cover shall be held in place across the top of the body by chrome snaps. The sides of the cover shall have integral flaps that extend down to cover the sides of the crosslay. The side flaps 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. 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 39" wide.

Pump Module Height

The pump module height shall be 75".

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.

Pump Access Door

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.

The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4" pins along the forward edge of the pump module. The hinges shall be "staked" on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel 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.

PUMP MODULE OPTIONS

Pump Compartment Heaters

Two (2) 24,000 BTU heaters shall be installed in the lower pump compartment area. The heaters shall be connected to the chassis engine coolant system and shall include 12 volt blowers. The heaters shall be controlled at the pump operator's panel.

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.

Storage Pan

A storage pan shall be provided in the upper pump module area. The pan shall be constructed of 3/16" (.188") aluminum treadplate and be removable to service items in the pump module below. Holes shall be provided in the corners of the pan to facilitate drainage of water.

Double Crosslay Hosebed

Two (2) crosslay hosebeds shall be provided on the pump module. Each of the two (2) crosslay areas shall have a capacity for up to 200' 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.

WATER TANK

2030 Gallon Water Tank

A 2030 gallon (U.S.) "T" booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2" (0.50") thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

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. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3" above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, 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. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

Tank capacity is 2030 US gallons / 1690 Imperial gallons / 7684 Liters.

Fill Tower Location

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

WATER TANK OPTIONS

Newton Dump Provision

Special provisions for mounting a Newton dump valve on the poly water tank shall be provided.

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.

Rear Swivel Dump

A tank dump shall be provided at the rear of the apparatus.

The tank dump shall be a Newton Kwik Swivel Dump and shall include a 10" x 10" flip-up valve plate for maximum water flow. The lower portion of the dump assembly shall swivel 180 degrees and shall include a manual telescopic chute extension that shall extend the dumping past the sides of the body and rear tailboard area.

The dump valve shall be manually actuated from the upper area of the dump assembly and shall be accessible from the driver or officer side during side to side dumping operations.

The exterior surface of the dump assembly shall be mild steel.

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.

Rear Direct Tank Fill

One (1) 4" rear direct water tank fill shall be provided.

The connection shall include an inlet strainer, 4" NST inlet with droop and cap with retainer.

The valve control shall be a handwheel located on the valve.

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

The direct tank fill shall be located to the driver's side rear of the body.

Rear Direct Tank Fill

One (1) 2.5" rear direct water tank fill shall be provided.

The valve shall be installed between the fill connection port and the water tank to prevent water from flowing out of the tank after filling or disconnecting of the fill line. The connection shall include an inlet strainer, 2.5" FNST inlet swivel with droop and plug with retainer.

The valve control shall be a swing handle located on the valve that 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.

The direct tank fill shall be located to the officer's side rear of the body.

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

Internal Tank Ladder/Equipment Storage

The water tank shall have an internal ladder and equipment storage area. The storage area shall have the capacity to store one (1) two section 24' extension ladder, one (1) 14' roof ladder, one (1) 10' attic ladder with feet and two (2) pike poles. The ladders and/or equipment shall be accessible through the rear compartment area.

Reduces selected water tank capacity by approximately 250 gallons for pumpers and 300 gallons for tankers.

HANDRAILS / STEPS

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.

Hose Bed Folding Steps

Innovative Controls dual lighted LED folding steps shall be positioned to the officer 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 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 (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.

MISC BODY OPTIONS

Mud Flaps

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

Body Height and Mainframe Construction

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 cross member 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 cross members 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.

Hose Bed Side Assembly

The hose bed side assemblies shall be made of 3" x 3" slotted aluminum extrusion and 3/16" (.188") smooth plate. The hose bed side assemblies shall provide a 90" high body.

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

Hose Bed Divider

There shall be a hose bed divider provided the full fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4" (0.25") smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3" radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Hose Bed Divider Hand Hold

There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider.

Fuel Fill

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

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 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

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 1/8" (0.125") aluminum tread plate. The wheel well trim shall be constructed from 6063-T5 formed aluminum extrusion.

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.

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.

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 rear 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: driver side rear wheel well offset forward, officer side rear wheel well offset forward, officer side rear wheel well offset rearward

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.

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 valve shall be mounted in the cab and be labeled "PUMP SHIFT". The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission.

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 current NFPA 1901. 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 current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

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

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.

Inlet Valve

A Hale Master Intake Valve (MIV-E) shall be provided for the specified intake. The large diameter inlet valve shall be capable of achieving an NFPA test rating of 1500 GPM through a single 6" suction hose.

The inlet valve shall be operated by a 12 VDC electric motor with a remote switch provided at the pump operator's position. The 12 VDC motor shall be provided with an automatic resetting, thermally-compensated over-current protection circuit breaker to protect the 12 VDC motor and apparatus electrical system. The gear actuator on the valve will cycle from full closed to full open in not less than three (3) seconds. A hand controlled pump panel mounted manual override (knob style) shall be provided.

An indicator light panel shall be located at the pump operator's position to show valve open, closed, or traversing from open to closed.

A built-in adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed.

A 3/4" air bleeder valve shall be provided and controlled at the pump operator's position.

A 1/4" water bleeder shall be supplied and controlled at the pump operator's position.

Location: 5 in. front intake.

Pump Seal Packing

The pump shaft shall have only one (1) packing gland located on the inlet side of the pump. It shall be of split design for ease of repacking. The packing gland shall be of a design to exert uniform pressure on packing and to prevent cocking and uneven packing load when tightened. The packing rings shall be permanently lubricated, graphite composition and have sacrificial zinc foil separators to protect the pump shaft from galvanic corrosion.

The packing shall be easily adjusted by hand with rod or screw driver with no special tools or wrenches required.

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.

Primer Valve

There shall be one (1) additional "push to prime" remote primer control shall be installed on the panel for the specified additional intake. The additional control shall operate the air primer to pre-prime and may be used to remove air from the auxiliary intake piping and hose, while the fire pump is operating.

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 with 3/4" NPT connection to the fire pump.

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 brass "wye" type strainer with removable stainless steel 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.

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.

Front Intake 5 No Valve

A 5" stainless steel pipe shall extend from the right suction side of the pump to the front of the apparatus. All fabricated piping used in the front suction shall be constructed of a minimum of Schedule 10 stainless steel pipe to reduce corrosion of the lines. 3/4" valve(s) shall be provided to allow water to be drained.

INTAKE OPTIONS

Front Intake Swivel 6

A heavy duty 6" 90 degree cast brass elbow designed and constructed specifically for fire/emergency vehicle usage shall serve as the auxiliary front suction inlet. The elbow, also referred to as the "swivel", shall be attached to the front suction piping. This component shall have the following features:

- 1) The ability to rotate 180 degrees.
- 2) A rugged twist-lock mechanism to hold the elbow in place at the desired position.
- 3) A double-ball race with bronze balls.
- 4) A 5" NPT free swivel female inlet.
- 5) A 6" NST male outlet with strainer.
- 6) Cast brass with polished chrome finish.

The elbow/swivel shall be mounted so that it extends above the extended front bumper.

Intake Relief Valve

The pump shall be equipped with an Akron style 53 cast brass, variable-pressure-setting relief valve on the pump suction side. It shall be designed to operate at a maximum inlet pressure of 200 PSI. The relief valve shall be normally closed and shall be set to begin opening at 125 PSI in order to limit intake pressures in the pumping system. When the relief valve opens, the overflow water shall be directed through a plumbed outlet to discharge below the body in an area visible to the pump operator. The overflow outlet shall terminate with a male 2-1/2" NST threaded fitting to allow the overflow water to be directed away from the vehicle with a short hose (supplied by the fire department) during freezing weather or under other conditions where an accumulation of water around the apparatus might be hazardous.

DISCHARGES AND PRECONNECTS

Front Jump Line 1.5 Akron Valve

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

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.

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 discharge shall be supplied with a Class 1 automatic 3/4" drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi.

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.

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 driver's side of center tray.

1.5 Single Crosslay Akron Valve [Qty: 2]

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay 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. 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

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

One (1) 2-1/2" discharge outlet with a manually operated Akron valve 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.

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 Panel 3 Discharge Akron Valve

One (1) 3" discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel. The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds. 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 side discharge 1.

DISCHARGE OPTIONS

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ 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: 9]

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with chrome-plated lift lever handles and ergonomic grips. Each lift handle grip shall feature built-in color-coding labels and a verbiage tag identifying each valve, also supplied by Innovative Controls. The color labels shall also include valve open and close verbiage.

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 bezel 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.

PRESSURE GOVERNORS

Pump Pressure Governor

The apparatus shall be equipped with a Class 1 "TOTAL PRESSURE GOVERNOR" (TPG) Integrated pump control system.

The TPG shall have a weatherproof color display. The TPG will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The TPG is to operate as a pressure sensor (regulating) governor (PSG).

The TPG shall display engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable.

GAUGES

Water Tank Level Gauge, Additional

The apparatus shall be equipped with an additional Class 1 water tank level gauge located officer rear.

The gauge shall indicate the liquid level on an easy to read display and show increments of 1/20 of a tank. The gauge shall be a bright LED bar graph display with a visual flashing alarm at 1/4 of a tank.

The tank level system shall use a built-in calibration system and shall automatically adjust for pressure differentials within the tank.

Weather resistant connectors shall be used to connect to the digital display to the pressure transducer and to the apparatus power.

Gauge Class 1 Tank Level Water with Whelen PSTank Lights

One (1) Class 1 brand Intelli-Tank™ water tank level gauge system shall be located at the pump operator's panel to provide wide angle viewing and a high-visibility display of the water tank level.

Four (4) ultra-bright LED's (light emitting diodes) on the display module allow the full, 3/4, 1/2 and refill levels to be easily distinguished at a glance.

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.

The system shall calibrate to any size and shape of tank and has a built-in diagnosis feature. It comes complete with an industrial pressure transducer which will provide nine (9) accurate levels of indications. Each display also has a programmable night dimming feature.

In addition to the pump panel mounted lights there shall be one (1) Whelen PSTank series LED (Light Emitting Diode) strip-light installed each side as specified.

The system shall be controlled by a Class 1 electronic tank level driver module that is integral to 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 PSTank Strip-Lights: each side of cab rear of front doors.

2.5" Gauge [Qty: 9]

The valve discharge gauges shall be 2 1/2" (63mm) diameter Innovative Controls pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall exceed ANSI B40.1 Grade A requirements with an accuracy of +/- 1.5% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

A polished chrome-plated stainless steel bezel shall be provided to prevent corrosion and protect the lens and gauge case. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels. The gauges shall display a range from 0 to 400 psi with black graphics on a white background.

4" Master Pressure Gauges w/Bezel

The master intake and master discharge gauges shall be 4" (101mm) diameter IC pressure gauges. Each gauge shall have a rugged corrosion free stainless steel case and clear scratch resistant molded crystals with captive O-ring seals to ensure distortion free viewing and seal the gauge. The gauges shall be filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40F to +160F. Each gauge shall meet ANSI B40.1 Grade 1A requirements with an accuracy of +/- 1% full scale and include a size appropriate phosphorous bronze bourdon tube with a reinforced lap joint and large tube base to increase the tube life and gauge accuracy.

The two master gauges shall be installed into decorative chrome-plated zinc mounting bezel that also incorporates a test port manifold and a graphic overlay that identifies the master intake and discharge gauges, the vacuum test port, and the pressure test port. The test port manifold is solid cast brass with chrome plated plugs. The master gauges shall be installed on the pump panel no more than 6 inches apart. The gauge on the left shall be the master pump intake gauge and display a range from 30" vac to 400 psi with black graphics on a white background. The gauge on the right shall be the master pump discharge gauge and display a range from 0 to 400 psi with black graphics on a white background.

ELECTRICAL SYSTEMS

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a 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 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

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 must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
- 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.
- Each module that controls a device shall hold its own configuration program.
- Each module should be able to function as a standalone module. No "add-on" module will be acceptable to achieve this form of operation.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.
- Wire harness needed to interface electrical devices with multiplex modules.
- The grounds from each device should return to 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 1901-Standard for Automotive Fire Apparatus
- 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”.

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.

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 1901. 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 NFPA 1901 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.

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. 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.

Multiplex Display

The V-MUX multiplex electrical system shall include a Vista IV color display.

The display shall have the following features:

- Aspect ratio of 16:9 (Wide Screen)
- Diagonal measurement of no less than 7"
- Master warning switch
- Engine high idle switch
- Five (5) tactile switches to access secondary menus
- Eight (8) multi-function programmable tactile switches
- Specific door ajar indication
- Real time clock
- Provides access to the multiplex system diagnostics
- Video capability for optional back-up camera(s) and GPS display

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

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.

Smart Truck Technology

User Interface

The apparatus shall be equipped with a smart truck technology system designed specifically for first responder apparatus. The system shall interconnect major apparatus CAN networks including but not limited to the chassis J1939/OBD2 data, vehicle multiplex system, water pump pressure governor, electric valves and electric actuated deck gun. The system shall securely report real-time vehicle information from these systems via cellular data to a globally supported cloud computing service for storage and real time access via web dashboards. The dashboards shall be accessible by the department's computers, tablets and smartphones.

The smart truck technology installed on the apparatus shall provide real-time notification via text or e-mail when a check engine light is displayed. The notification shall include the fault code and brief explanation for the code to reduce down-time.

The system shall feature a truck down feature on the web-based user interface to allow instant notification of needed apparatus service to both the authorized dealership and OEM via text or e-mail.

The system shall provide remote diagnostics of vehicle subsystems such as VMUX, pressure governors, electric monitors and electric valves.

By use of the web based user interface, the system shall allow for over the air programming updates to various subsystems should the need arise.

The web-based user interface shall also provide the following:

- Fuel and DEF levels
- GPS tracking
- Data logging for apparatus multiplex system
- Easy access to the NFPA VDR data

The smart truck technology shall also feature seamless integration to the HAAS ALERT Safety Cloud providing Responder to Vehicle (R2V) alerts to motorists using navigation apps such as WAZE.

The system shall be designed with an open architecture to incorporate future growth with new technology partners designed to enhance fireground operations

Hardware

Vehicle Gateway

The vehicle gateway module shall be rugged in construction using a durable cast aluminum enclosure designed for emergency vehicle applications. The module shall have sealed Deutsch connectors providing four (4) CAN network ports, one (1) RS-485 port, one (1) Ethernet RJ45 port, embedded cellular modem, Bluetooth and GPS capability. The IoT Core Vehicle Gateway shall be capable of 2 way vehicle telemetry, supporting both remote diagnostics and remote over-the-air software updates.

Antenna

A low profile cellular antenna shall be installed on the cab roof.

Data Plan

A 5 year data plan shall be provided with the initial vehicle purchase. At the end of the 5 year period the department shall be given the option to extend service.

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

A Whelen Freedom IV Series 72" LED light bar model F4X7 with eight (8) LED modules shall be provided; two (2) front corner mounted LED modules, four (4) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

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.

WARNING LIGHT PACKAGES

Lower Level Warning Light Package

Eight (8) Whelen C-Series Super LED model C6L light heads and two (2) Whelen ION-T Series Super LED model TLI light heads shall be provided. The lights shall be Red with red lenses.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

- Two (2) C6L lights on the front of the apparatus facing forward.
- Two (2) C6L lights on the rear of the apparatus facing rearward.
- Two (2) lights each side of the apparatus, one (1) C6L each side at the forward most point (as practical), and one (1) TLI each side at the rearward most point (as practical).
- One (1) C6L light each side of the apparatus centrally located to provide mid ship warning light.

The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.

All warning devices shall be surface mounted in compliance with NFPA standards.

WARNING LIGHTS

Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons with Red domes shall be supplied.

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

Hazard (Door Ajar) Light

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

The light shall be located center overhead.

SIRENS

Electronic Siren

A Whelen 295SLSA1 electronic siren shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

Electronic Siren Control Location

The electronic siren control shall be located in the center overhead.

Mechanical Siren

A chrome plated and pedestal mounted Federal Q2B-P coaster siren shall be installed on top of the front bumper extension. An electric siren brake switch shall be located in the cab accessible to the driver.

The siren shall be located driver 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 driver side front bumper.

DOT LIGHTING

License Plate Light

One (1) Truck-Lite model 15905 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.

LED Marker Lights

LED clearance/marker lights shall be installed as specified.

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 Trucklite LED clearance light each side, rear of body to the side.

Lower Body:

- Three (3) red Trucklite LED clearance lights centered at rear, recessed in the rub rail.
- One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rub rail.
- One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body/module, recessed in the rub rail.

Tail Lights

Three (3) TecNiq model K60 LED (Light Emitting Diode) lights shall be installed in a Cast 3 housing in a vertical position each side at the rear and wired with weatherproof connectors.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED populated amber arrow pattern turn signal in middle position.
- LED clear back-up light in lower position.

A one-piece polished aluminum trim casting shall be mounted around the three (3) individual lights in a vertical position.

LIGHTS - COMPARTMENT, STEP & GROUND

Compartment Light Package

There shall be a minimum of one (1) TecNiq model T440 4" circular LED (Light Emitting Diode) mounted in each body compartment greater than 4 cu ft. Compartments over 36" in height shall have a minimum of two (2) lights, one (1) high and one (1) low.

Transverse compartments shall have a minimum of two (2) lights, located one (1) each side.

Compartment lights shall be wired to a master on/off switch on the cab switch panel. Each light shall be in a resilient shock shock-absorbent mount for improved bulb life.

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

Hose Bed Light

An Optronics round LED light model TLL44 shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The hose bed light shall be switched with the work light switch in the cab.

Deck Lights

Two (2) Optronics round 12 volt LED model TLL44 floodlights shall be installed at the rear of the apparatus. Each light shall provide 720 lm effective output. Each light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The rear deck lights shall be switched with the work light switch in the cab.

Location: rear body/beavertail area on the trailing edge up high.

Crosslay Light

An Optronics round LED light model TLL44 shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The crosslay light shall be switched with the work light switch in the cab.

LIGHTS - NON-WARNING

Engine Compartment Light

There shall be lighting provided in compliance with NFPA to illuminate the engine compartment area. The light wiring circuit shall activate when the cab is tilted and master power is switched on.

Pump Compartment Light

An incandescent 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) TecNiq model E10 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.

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 driver's side, 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.

Cab Tilt Switch

The cab tilt shall be controlled by Ramsey weatherproof momentary action push-button switches connected to a cord. The cord shall control tilting and lowering functions of the cab and have an extended length of 36".

The plug-in for the control shall be located next to manual cab tilt pump.

CAMERAS / INTERCOM

Back-Up Camera

There shall be a Federal Signal (Sony) camera model number CAMCCD-REARNTSC provided and mounted on the rear of the apparatus. The camera shall feature a wide angle lens, IR LED assisted illumination for enhanced low-light performance, non-corrosive mounting bracket, and stainless steel hardware. The camera shall be wired through multiplex display, 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.

LIGHTS - QUARTZ

Whelen Pioneer 12V LED Flood Light

A Whelen Pioneer Plus series 160 watt 12V flood light model PFH2 dual panel LED light head shall be provided on a cab brow mount. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have thirty-six (36) white Super-LEDs with molded vacuum metalized reflector that draws 13 amps and produce 17,750 usable lumens.

Location(s): center of front cab brow.

Whelen Pioneer 12V LED Flood Light

A Whelen Pioneer Plus model PFH2P 12V flood LED light fixture(s) shall be provided. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have thirty-six (36) white Super-LEDs with a molded vacuum metalized reflector that draws 13 amps and produce 17,750 usable lumens.

The light shall be mounted on a Whelen 3100 series through the body top adjustment pull-up pole. The wiring shall be routed from the light head.

A hand tightened locking knob shall be provided to allow for easy adjustment of the pole height.

Location: driver side of pump module forward area, officer side of pump module forward area.

ADAPTERS

Storz Adapter

Storz Swivel 3" FNST x 5" 30 Degree Elbow

An aluminum 3" female NST x 5" Storz swivel elbow adapter with a tethered cap shall be supplied.

HOSE / NOZZLES

PVC Suction Hose 6in [Qty: 2]

- 6" X 10' PVC LIGHTWEIGHT SUCTION ONLY HOSE

- Special corrugated PVC exterior for maximum flexibility and smooth waterway
- Clear flexible PVC between the helix for ribs for full vision of water
- Distinctive black colored helix ribs for maximum UV protection
- One-piece extruded aluminum field repairable, reattachable collars on 6" NST female x 6" Rocker lug NST Male couplings
- Ultra flexible and lightweight, one-man hook-up operation if necessary
- Designed for full vacuum
- Clear for full vision of water flow
- Meets and exceeds all NFPA Standards 1961, current edition

GROUND LADDERS

Alco-Lite Folding Ladder

One (1) Alco-Lite FL-10, 10' aluminum folding ladder shall be provided. Both ends shall be equipped with molded rubber end caps and the ladder shall have handles for easy carrying. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

Alco-Lite Roof Ladder

An Alco-Lite PRL-14, 14' aluminum roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other.

Alco-Lite Extension Ladder

One (1) Alco-Lite PEL-24, 24' aluminum 2-section extension ladder shall be provided. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

MISC LOOSE EQUIPMENT

Chrome Barrel Strainer

A chrome barrel strainer that will fit a 6" NST hard suction hose shall be supplied.

Wheel Chocks

Zico Model #AC-32 Chocks for up to 32" diameter tires shall be supplied and located per the customer. The QCH-32-H horizontal holder and pair of chocks require a minimum storage area of 8-1/2" high, 8" wide and 14-3/16" deep.

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

EXTERIOR PAINT

Un-Painted Pump/Pre-Connect Module(s)

All applicable pump application modules shall have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module shall be painted job color.

Paint Custom Cab

The apparatus cab shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control).

The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Body Small

The apparatus body shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Front Intake Elbow

Paint 5" front intake elbow job color above gravelshield.

INTERIOR PAINT

Cab Interior Paint

The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

STRIPING

Reflective Stripe in Rubrail

The reflective stripe in the body rubrail shall be white.

Rear Body Scotchlite Striping

Printed chevron style Scotchlite striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Lemon Yellow alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels, doors and inboard/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 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

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.

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.
- 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.

WARRANTY / STANDARD & EXTENDED

Standard 1 Year Warranty

The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

Lifetime Frame Warranty

The apparatus manufacturer shall provide a full lifetime frame structural warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.

10 Year 100,000 Mile Structural Warranty

The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

10 Year Stainless Steel Plumbing Warranty

The apparatus manufacturer shall provide a full 10-year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.

10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

Topcoat & Appearance:

(Gloss, Color Retention, Cracking)

0 to 72 months	100%
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73 to 120 months	50%
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Coating System, Adhesion & Corrosion:

(Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling)

0 to 36 months	100%
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37 to 84 months	50%
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85 to 120 months	25%
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Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

25 Year Frame Rail Corrosion Warranty

The chassis manufacturer shall provide a 25 year corrosion warranty on the chassis frame rails. This warranty shall cover the chassis frame rails, including frame rail liners (if equipped), for a period of 25 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

20 Year Frame Components Corrosion Warranty

The chassis manufacturer shall provide a 20 year corrosion warranty on the galvanized chassis frame components. This warranty shall cover the front frame extensions, chassis crossmembers (from engine rearward), battery tray brackets and rear underbody support (if applicable) for a period of 20 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

Meritor Front Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor **front non-drive steer** axle warranty shall be provided by Meritor Automotive or a 2-year/unlimited miles, 2-year parts and 2-year labor **front drive steer** axle warranty shall be provided by Meritor Automotive.

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.

QUOTATION

Lakes Region Fire Apparatus, Inc.

Deering Fire Department
Chief Daniel Gorman

890 Deering center road

Deering, New Hampshire 03244

603.529.4303

kris37fire@yahoo.com

Lakes Region Fire Apparatus, Inc.
Glenn Davis

PO Box 970

West Ossipee, NH 03890

603-323-7117

603-323-7447
glenn@lakesfire.com

Exp. Date: 11/24/2018
Quote No: 10190-0001
12/12/2018

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PART NO	S	DESCRIPTION	QTY	ID	PG
== Bid Specifications - 4.001 ==			1	HME	1
02-02-0400		> Cover Page, Custom Chassis, Pumper	1	HME	1
04-12-0600		-- Inspection Trip, (1) For (4) Persons, Air Trvl As Required	1	HME	3
04-14-0400		-- Apparatus Familiarization, {qty} Days	1	HME	3
04-16-3000		> -- Delivery, (270) Calendar Days - Pumper, Tanker, Rescue	1	HME	3
== HME Ahrens-Fox - SFO 96" Custom - 4.001 ==			1	HMC	4
00-00-0012		NFPA-1901, Current Edition - Complete Apparatus	1	HMC	4
00-00-90SF	S	> Vocation and Basic Attributes - Apparatus	1	HMC	4
00-00-92SF	S	> Paint Codes and Basic Attributes - Apparatus	1	HMC	5
CHASSIS			1	HMC	
00-J0-10AF		HME Ahrens-Fox 1871-SFO Custom Chassis	1	HMC	
00-J0-2010		-- Custom Chassis - Vertically Integrated Builder	1	HMC	5
01-A0-0104		4x2 Chassis - Two Axle - Rear Wheel Drive - MFS Frt - SFO	1	HMC	
01-G0-1102		> -- Single Frame Rails - SFO	1	HMC	6
01-I0-1100		-- Frame Rail Finish - Galvanized, Single Rails	1	HMC	6
07-A0-2020		-- Front Axle 20,000# - Meritor MFS	1	HMC	6
07-AC-4500		-- 45° Cramp Angle	1	HMC	6
07-B0-0100		-- Oil Seals - Front Axle - Factory Premium	1	HMC	6
07-C0-0100		-- S-Cam Brakes - Front Axle	1	HMC	6
07-R0-1020		-- Front Suspension 20,000# - Semi-Elliptical Spring	1	HMC	7
07-RS-0100		-- Shock Absorbers - Front Axle	1	HMC	7
07-Y0-0122		-- Steering - 21,500# - Sheppard Dual Gear	1	HMC	7

10-MF-1810	>	-- Michelin 385/65R22.5-20 PR (L) Front - XFE - 19,840#	1	HMC	7
10-GV-0065		-- Tire Speed Rating - 65 MPH	1	HMC	7
10-W0-1030		-- Front - Aluminum Wheels - 12.25	1	HMC	7
10-WP-0100		-- Wheel Bright Finish Protection	2	HMC	7
10-X0-0100		-- Stainless 'Baby Moon' Caps & Nutcovers	1	HMC	7
08-AS-1031		-- Single Rear Axle 31,000# - Meritor RS-30-185	1	HMC	7
08-AV-F185		-- 185 Series Differential - Single Axle	1	HMC	7
08-AV-S010		-- Axle Lube - Non Synthetic	1	HMC	8
08-AW-1010		-- Driver Controlled Differential Lock - (DCDL) Single Axle	1	HMC	8
08-B0-0100		-- Oil Seals - Rear Axle - Factory Premium	1	HMC	8
08-C0-0100		-- S-Cam Brakes - Single Rear Axle	1	HMC	8
08-PA-0090		-- Vehicle Top Speed Less Than 60 MPH	1	HMC	8
08-R0-0110		-- Single Axle Suspension - 31,000# - Spring	1	HMC	8
08-T0-0110	>	-- Automatic Tire Chains - On-Spot Brand	1	HMC	8
09-A0-1000		-- Air System - Color Coded Nylon Air Lines - Single Axle	1	HMC	9
09-A0-1208		-- Bendix AD SP Dryer	1	HMC	9
09-D0-0102		-- Air Tank Drains - Manual	1	HMC	10
09-F0-0201		-- Air Auto Eject - Kussmaul w/Weatherproof Cover	1	HMC	10
09-F0-0212		-- Cab Exterior Mounted - Behind the Driver's Door	1	HMC	10
09-L0-0400		-- ABS Brake System - 4 Wheel - Meritor/Wabco	1	HMC	10
09-LB-1110		-- ABS Mud & Snow Selector Switch	1	HMC	10

PART NO	S	DESCRIPTION	QTY	ID	PG
09-RS-1010	>	-- Stability Enhancement System - 4 Wheel - Meritor/Wabco	1	HMC	10
10-MT-3000		-- Michelin 315/80R22.5-20PR (L) Rear Traction - XworksZ - 33,080#	1	HMC	11
10-GV-0065		-- Tire Speed Rating - 65 MPH	1	HMC	11
10-W0-3020		-- Inner and Outer Rear - SA - Aluminum Wheels - 9.00	1	HMC	11
10-WP-0100		-- Wheel Bright Finish Protection	4	HMC	11
10-X0-0300		-- Stainless "Lincoln Hat" Hub & Nut Covers	1	HMC	11
10-GW-0122		-- Tire Pressure Monitoring Device - 2 Axles - LED Alert	1	HMC	11
08-RS-0500		-- Axle & Chassis Laser Alignment	1	HMC	11
13-EU-5437		Cummins L9 - 370 HP - MY 18 - 989 Radiator	1	HMC	12
13-A0-0989		-- Engine Cooling System Radiator - 989 Sq. In.	1	HMC	12

13-A0-1450	-- Engine Coolant Recovery System	1	HMC	13
13-A0-1500	-- Charge Air Cooler - Engine Air Intake	1	HMC	13
13-A0-1700	-- Radiator Coolant	1	HMC	14
13-A0-1900	-- Premium Cooling System Hoses	1	HMC	14
13-A0-1960	-- Constant Torque Cooling System Clamps - Entire System	1	HMC	14
13-A0-1974	-- Heater Shut Off Valves	1	HMC	14
13-A0-2010	-- Radiator Skid Plate	1	HMC	14
13-I0-0004	-- Engine Air Intake Filter, K&N, Washable	1	HMC	14
13-L0-0002	-- Engine Oil - First Fill	1	HMC	14
13-N0-0210	-- Engine Brake - Cummins L9 Engine	1	HMC	14
13-P0-2300	-- Fast (High) Idle - Manual Select - Auto Low Voltage	1	HMC	15
13-S0-0040	-- Corrosion Inhibitor	1	HMC	15
13-V0-0120	-- Auxiliary Engine Cooler - Sendure	1	HMC	15
13-V0-0210	-- Spark Arrestor - Air Intake	1	HMC	15
13-V0-3020	-- Fan Clutch - Fully Variable Fan Drive	1	HMC	15
13-Y0-0620	-- MY 18 Compliant Exhaust Treatment System - L9	1	HMC	15
13-Y0-1610	> -- Cummins Aftertreatment System - MY 18 - L9	1	HMC	15
13-Y0-3010	-- Stainless Tailpipe - Curb Side - 90° Exit - Straight Cut End	1	HMC	15
13-Y0-6010	-- Exhaust Tailpipe Diffuser	1	HMC	16
13-Z0-0017	-- DEF System - 5 Gallon Reservoir - MY 18	1	HMC	16
14-C0-3000	-- Allison 3000EVS Automatic Transmission	1	HMC	16
14-D0-0100	-- Transmission Fluid - Allison TES-389	1	HMC	16
14-ER-0110	-- Four-Mode-Five Allison Programming - 3000EVS	1	HMC	16
14-ET-0100	-- Automatic Neutral Programming - 2500 EVS / 3000EVS / 4000EVS	1	HMC	16
14-HF-0100	-- Drivertrain Fluid Monitoring System	1	HMC	17
14-W0-1100	-- 1760 Series Drivelines	1	HMC	18
25-A0-2000	> -- Fuel Tank - 50 Gallon - Stainless Straps	1	HMC	18
25-V0-0000	-- Reinforced Fuel Lines	1	HMC	18
25-F0-0200	-- Fuel Filter - Cummins - Factory	1	HMC	18
45-D0-0200	-- 320 Amp Alternator - Leece-Neville - 4890JB	1	HMC	18
CAB MODEL		1	HMC	
40-D0-0610	SFO-MFD - Aluminum 96" Wide Cab - 12" Raised Roof	1	HMC	18
14-ES-0200	-- Transmission Selector - Push Button Type	1	HMC	21
14-ES-0400	-- Transmission Fluid Check - Transmission Selector	1	HMC	21

40-N0-0805	-- Cab Stainless Fender	1	HMC	21
40-U0-0098	-- Overhead Heater / Defroster - SFO	1	HMC	21
40-U0-0310	-- Defroster Fans - Overhead Mounted	1	HMC	21
40-U0-0450	> -- 45,000 BTU Air Conditioning with Heater - Single Condenser	1	HMC	21
40-U0-0610	-- 36,000 BTU Supplemental Heater	1	HMC	22
40-U0-0620	-- Cab Climate Control Insulation Package	1	HMC	22
45-E0-0100	-- EMI/RFI Noise Supression	1	HMC	22
45-NS-0802	-- Stainless Steel Battery Tray	1	HMC	22
45-NU-0610	-- Battery Box Dri-Dek	1	HMC	22
45-NU-0322	-- Single Battery System - 4 Group 31- SFO	1	HMC	22
45-NU-0410	-- Battery Jumpers	1	HMC	23
45-T0-0101	-- 40 Amp - Battery Charger - ProMariner - SFO	1	HMC	23
45-Z0-1200	-- Kussmaul 20 AMP - 120v - Super Auto Eject	1	HMC	23
45-Z0-1302	-- Yellow Auto-Eject Cover	1	HMC	24
45-Z0-1314	-- Plain Cover	1	HMC	24
45-Z0-1320	-- Cab Exterior Mounted - Behind the Driver's Door	1	HMC	24

PART NO	S	DESCRIPTION	QTY	ID	PG
45-NU-0510		-- Battery Jumper Studs	1	HMC	24
		CAB INTERIOR	1	HMC	
40-D0-5130		Cab Interior Appointments and Options - 1871SFO -- Apparatus	1	HMC	
40-DE-0300	< >	-- Engine Enclosure - Vinyl Covering - Acoustiblok - NO FLUID CHECK	1	HMC	24
		HATCH			
40-DE-1030		-- Painted Interior Door Panels	1	HMC	24
40-DE-2010		-- Interior Padding - Standard Ceiling	1	HMC	24
40-DE-2020		-- Interior Padding - Standard Rear Wall	1	HMC	24
40-DE-2060		-- Floor Material - Accoustical Wear Mat	1	HMC	25
40-DE-2070		-- * * * Rear Facing Seat Box Covering - Accoustical Wear Mat	1	HMC	25
40-DE-2620		-- Interior Padding - Rugged Zolotone Dash	1	HMC	25
40-DE-3050		-- Cab Door Reflective Material - Chevron	1	HMC	25
40-DE-4002		-- Cab Step Well Trim - Step Tops Only	1	HMC	25
40-DE-7010		-- Steering Wheel and Column	1	HMC	25
40-DH-0260		-- Grab Hndls - Inside - Driver's, Officer's A-Post and Both Crew Doors	1	HMC	25

40-LC-0114		-- Open Compartment Light - Red Flashing - Whelen OS LED	1	HMC	25
40-LD-0100		-- Interior Lighting Group - 1871W - 1871SFO	1	HMC	26
40-LD-0420		-- LED Strip Light Interior Light Packages	1	HMC	26
40-LD-4010		-- Step Nose LED Lighting - WHITE/RED	1	HMC	26
40-LD-5012		-- Driver and Officer Door Strip Lighting - WHITE/RED	1	HMC	26
40-LD-5184		-- Cab Door Controlled	1	HMC	26
40-LD-5186	>	-- Red Lighting Driver Switch Controlled	1	HMC	26
40-LD-5193	>	-- White Lighting Driver Switch Controlled	1	HMC	26
40-LD-5102		-- Forward Crew Area LED Strip Lighting - WHITE/RED	1	HMC	26
40-LD-5184		-- Cab Door Controlled	1	HMC	26
40-LD-5104		-- Rear Crew Area (Full Width) LED Strip Lighting - WHITE/RED	1	HMC	26
40-LD-5184		-- Cab Door Controlled	1	HMC	26
40-LD-5112		-- Crew Cab Door Area LED Strip Lighting - WHITE/RED	1	HMC	26
40-LD-5184		-- Cab Door Controlled	1	HMC	26
40-LD-5188	>	-- Crew Area Toggle Switch Controlled	1	HMC	26
40-LD-5182		-- Interior Cab Light Color Control	1	HMC	27
40-V0-0100		-- Driver Instrumentation (J1939) and Controls	1	HMC	27
40-V0-0120		-- Audible Turn Signal Reminder	1	HMC	27
40-V0-0122		-- Audible Lights On Reminder	1	HMC	27
40-V0-0124		-- Audible Parking Brake Reminder	1	HMC	28
40-V0-0130		-- Dual Trip Odometers	1	HMC	28
40-V0-0148	>	-- Odometer Activated While in Pump Mode	1	HMC	28
40-V0-0150		-- Low Fuel Warning Light and Alarm	1	HMC	28
40-V0-0152		-- Transmission Temperature Warning Light and Alarm	1	HMC	28
40-V0-0154		-- Low Voltage Warning Light	1	HMC	28
40-V0-0156		-- Air Cleaner Restriction Indicator	1	HMC	28
40-V0-0160		-- Low Coolant Warning	1	HMC	28
40-V0-0162		-- Wiper Control, Intermittent	1	HMC	28
69-C0-0100		-- On Board USB Electronic Operator's Manual w/Parts List	1	HMC	28
40-X0-1110		-- Doghouse SPS Panel - EsKey - Fab Housing	1	HMC	29
40-V0-0502		-- Parking Brake Control - Driver's Dash	1	HMC	29
40-X0-1302		-- White Warning Light Cut-Out Switch	1	HMC	29
45-NS-0200		-- Apparatus Base Digital Electrical System - Class1 EsKey	1	HMC	29
45-NS-0210		-- Information Display Module - Driver's Position	1	HMC	30

40-X0-1414	-- Dual Port USB Charging Port - Officer's	1	HMC	30
40-X0-8000	-- No Doghouse Mounted Cupholder	1	HMC	31
40-X0-9000	-- No Rear Seat Base Mounted Cupholder	1	HMC	31
40-YC-3810	-- Back-Up Camera System	1	HMC	31
40-YC-3820	-- Observation Monitor - 7" LCD - Waterproof	1	HMC	31
40-YC-4000	-- Monitor Mounting - Doghouse Mounted - Driver	1	HMC	31
40-YC-3834	-- Camera - Color - Rear - High Performance - White Housing	1	HMC	31
40-YC-4100	-- Operation - Battery Powered	1	HMC	31
40-YC-4200	-- Camera Mounting - Body Rear - Below Hosebed	1	HMC	31
40-YS-0108	-- Handheld Light Mounting - Rear Doghouse Area	2	HMC	31
40-YS-2116	-- Fire Vulcan Light - LED - Orange	2	HMC	31

PART NO	S	DESCRIPTION	QTY	ID	PG
40-YS-9010		-- Wiring - 12VDC	2	HMC	31
40-YS-3222		-- Survivor LED - Orange - 12VDC Charger Base	6	HMC	31
40-YS-9010		-- Wiring - 12VDC	6	HMC	32
40-Z0-0004		-- 12 VDC Power Point Triple Outlet	1	HMC	32
40-Z0-0012		-- Battery Direct Power	1	HMC	32
40-Z0-0138		-- Location - Front Doghouse Centered	1	HMC	32
40-Z0-0210		-- 12VDC Power Circuits - Radio and/or Accessories	1	HMC	32
40-Z0-0320		-- Location - Officer's Seatbox	1	HMC	32
40-Z0-0210		-- 12VDC Power Circuits - Radio and/or Accessories	1	HMC	32
40-Z0-0310		-- Location - Doghouse Top	1	HMC	32
40-Z0-0210		-- 12VDC Power Circuits - Radio and/or Accessories	1	HMC	32
40-Z0-0350		-- Location - Rear Doghouse - Right (Officer's) Side	1	HMC	32
40-Z0-0210		-- 12VDC Power Circuits - Radio and/or Accessories	1	HMC	32
40-Z0-0340		-- Location - Rear Doghouse - Left (Driver's) Side	1	HMC	32
40-Z0-0810		-- NMO Mount - Radio Antenna Wiring - Officer's Side Forward	1	HMC	32
40-Z0-0857		-- Location - Officer's Seat Area	1	HMC	33
40-Z0-0830		-- NMO Mount - Radio Antenna Wiring - Driver's Side Forward	1	HMC	33
40-Z0-0856		-- Location - Doghouse Top	1	HMC	33
40-Z0-0410		-- Cab 120-volt AC Circuit	1	HMC	33
40-Z0-0530		-- Location - Rear Doghouse - Centered	1	HMC	33

40-Z0-0600	> -- Electrical Outlet, Conf #2, Duplex, 120V/15A, Straight Blade	1	HMC	33
40-Z0-1210	-- Map Box	1	HMC	33
40-Z0-9910	-- Fire Extinguisher and Hazard Triangle Kit	1	HMC	33
CAB EXTERIOR		1	HMC	
40-D0-6130	Cab Exterior Appointments and Options - 1871SFO -- Apparatus	1	HMC	
40-DH-2100	-- Exterior Grab Handles - 24" Long	1	HMC	33
40-DZ-0112	-- 3-Dimensional Stainless Front Grille - SFO	1	HMC	33
40-G0-1010	-- Cab Front Mudflaps	1	HMC	34
40-G0-1300	-- Cab Ground Lights - LED Strip Lights	1	HMC	34
40-J0-1500	-- Heated and Remote Controlled Moto-Mirror with Lower Convex	1	HMC	34
40-K0-3510	-- Rear Window Safety Bars	1	HMC	34
40-LE-1002	-- Engine Maintenance Lights LED - Custom	1	HMC	34
40-N0-1400	-- Exterior Rear Wall - Diamondplate Overlay	1	HMC	34
40-P0-0100	-- Cab Tilt - Electric Pump	1	HMC	34
40-P0-0400	-- Cab Tilt Road Interlock	1	HMC	35
CAB AND CHASSIS PAINT		1	HMC	
40-Q0-1005	Cab & Chassis Paint - SFO	1	HMC	
40-Q0-1203	-- Gray Interior Paint - SFO Only	1	HMC	35
40-Q0-2012	-- Headliner - Gray	1	HMC	35
40-Q0-2112	-- Rear Wall Covering - Gray	1	HMC	35
40-Q0-2210	-- Floor Covering - Black	1	HMC	35
40-Q0-2304	-- Door Panels - Gray	1	HMC	35
40-Q0-2312	-- Doghouse Covering - Gray	1	HMC	35
40-Q0-2504	-- Dash Housing and Officer Console - Gray - SFO Only	1	HMC	35
40-Q0-3020	> -- Two-Tone Cab Exterior Paint	1	HMC	35
40-Q0-3080	> -- Cab Exterior Paint - PPG - Urethane	1	HMC	37
40-Q0-5020	-- Two-Tone Cab Breakline Stripe - Black	1	HMC	37
SEATING		1	HMC	
40-RS-0010	Seat Logos by Truck Model	1	HMC	
40-RS-4008	SFO - 96" - 2 Rear Facing - 2 Center Fwd Facing	1	HMC	
40-S0-0010	-- Seat Position 1 - Driver's Seat	1	HMC	37
40-S0-1350	-- Highback - Air Ride Suspension - HO Bostrom - Sierra 500 - ABTS	1	HMC	37
40-S0-0020	-- Seat Position 2 - Officer's Seat	1	HMC	37
40-S0-4310	-- SCBA Fixed Bottom Cush - Fixed Mtg - HO Bostrom - Tanker 500 -	1	HMC	37

	ABTS			
40-S0-9220	-- HO Bostrom SecurAll SCBA Locking Bracket	1	HMC	37
40-S0-0030	-- Seat Position 3 - Rear Facing Left Outboard - Behind Driver	1	HMC	37
40-S0-5820	> -- SCBA Flip Bottom Cush - Fixed Mtg - HO Bostrom - Tanker 500 -	1	HMC	37
	ABTS			
40-S0-9220	-- HO Bostrom SecurAll SCBA Locking Bracket	1	HMC	37

PART NO	S	DESCRIPTION	QTY	ID	PG
40-S0-0060		-- Seat Position 6 - Rear Facing Rt Outboard - Behind Officer	1	HMC	37
40-S0-5820	>	-- SCBA Flip Bottom Cush - Fixed Mtg - HO Bostrom - Tanker 500 -	1	HMC	37
		ABTS			
40-S0-9220		-- HO Bostrom SecurAll SCBA Locking Bracket	1	HMC	37
40-S0-008B		-- Seat Position 8 - Fwd Facing - Left Inside - SFOMFD-12 Only	1	HMC	38
40-S0-5820	>	-- SCBA Flip Bottom Cush - Fixed Mtg - HO Bostrom - Tanker 500 -	1	HMC	38
		ABTS			
40-S0-9220		-- HO Bostrom SecurAll SCBA Locking Bracket	1	HMC	38
40-S0-009B		-- Seat Position 9 - Fwd Facing - Right Inside - SFOMFD-12 Only	1	HMC	38
40-S0-5820	>	-- SCBA Flip Bottom Cush - Fixed Mtg - HO Bostrom - Tanker 500 -	1	HMC	38
		ABTS			
40-S0-9220		-- HO Bostrom SecurAll SCBA Locking Bracket	1	HMC	38
40-S0-6110	>	-- Forward Facing Seat Riser - w/In-Cab Storage Tray	1	HMC	38
40-S0-7420		-- Gray / Black Durawear Seat Covering	1	HMC	38
40-S0-8002		-- Seat Belt Warning Labels	1	HMC	38
40-S0-8014		Vehicle Data Recorder and Seat Belt Warning System	1	HMC	38
40-S0-8018		-- Seat Belt Warning System Graphic Monitor Panel	1	HMC	39
		FRONT BUMPER / AUDIBLE WARNING	1	HMC	
42-A0-3010		Front Bumper - 10" High - Polished Stainless -- Apparatus	1	HMC	39
01-V0-3318		-- Front Bumper Extension - 18 Inches	1	HMC	39
01-T0-1114	>	-- Front Suction - 5" - Thru Bumper Face - Apparatus	1	HMC	39
01-T0-1306		-- Adapter Front Suction - Elkhart 5.0 NPT X 6.0 NH Chrome Plated	1	HMC	39
01-T0-2011		-- Long Handle Cap for Front Suction	1	HMC	39
01-T0-2410		-- Drain Valve - Manual - Front Suction - Akron Push-Pull	1	HMC	39
01-W0-0700		-- Chromed Tow Hooks Beneath Bumper	1	HMC	39

01-Z0-8012	-- Front Gravelshield	1	HMC	39
01-Z0-8202	> -- Center Hosewell	1	HMC	40
01-Z0-8720	-- Hosewell Cover - Vinyl	1	HMC	40
01-Z0-8726	-- Hosewell Cover Color, Vinyl, Midnight Black	1	HMC	40
40-H0-1110	> -- Dual Stutter Tone Air Horns - Bumper Recessed	1	HMC	40
40-H0-1201	-- Air Horn Circuit Powered - Battery and Ignition	1	HMC	40
40-H0-1210	-- Air Horn Control - Lanyard	1	HMC	40
40-H0-1302	-- Air/Elec Horn-Strg Wheel Cntrl - {Siren Switch Upgrade Here}	1	HMC	40
40-H0-2110	-- Electronic Siren - Federal Signal - Model PA300	1	HMC	40
40-H0-5410	-- Siren Head Mounting - Doghouse Mounted	1	HMC	40
40-H0-3020	-- Q2B Mechanical Siren - Bumper Recessed - Driver's Side	1	HMC	40
40-H0-5110	-- Siren Circuit Powered - Master Warning Light Switch	1	HMC	40
40-H0-5230	-- Siren Brake Switch - Driver and Officer Control	1	HMC	40
40-H0-5350	-- Siren Control - Driver & Officer Foot Switches	1	HMC	40
40-HA-2030	-- Siren Speaker - Cast Products - Recess Mtd - Right Side	1	HMC	40
69-C0-0200	-- Electronic Operator's Manual w/Parts List - One Set	1	HMC	41
69-C0-0300	-- FAMA Fire Apparatus Safety Guide	1	HMC	41
v4.001 - RELEASE DATE - 08/07/2018		1	HMC	
== Pump Module, 47" Side Mnt, Gen IIIi - 4.001 ==		1	HME	41
20-02-0100	> HydraTechnology, Pump House Design Requirement	1	HME	41
20-02-0240	> Pump Enclosure, Side Mount, 47" Wide, Gen IIIi	1	HME	42
20-04-0200	-- Running Boards, L/S, R/S w/Laser Grip S/S Step Surface	1	HME	42
20-06-0800	-- Dunnage Compt, w/Floor	1	HME	43
20-06-1610	-- Grabrails, (2) Access Dunnage Compt, Mtd L/ R Side of Compt	1	HME	43
20-10-1225	-- Work Light, (1) LED, Strip Light, Mtd Pump Compt w/Switch	1	HME	43
20-12-0600	-- Heater, Pump House, 53,500 BTU Hot Water w/12V Fan	1	HME	43
20-14-0100	-- Pump Service Access Requirements	1	HME	43
20-14-0403	-- Control Panel, Side Mount Module - Gen IIIi	1	HME	43
20-15-0100	-- Identification Labels - Engraved Plastic	1	HME	44
20-16-0200	-- Pump Panel Finish, Brushed Stainless Steel	1	HME	44
20-18-1012	-- Controls & Gauges, Side Mount - Standard Width - FRC	1	HME	44
20-18-1420	-- FRC In Control 400 Pressure Governor, Engine Monitor and	1	HME	44
	Pressure Display			
20-18-1550	-- 2-1/2" Pressure Gauges, 0-400 psig - English	1	HME	45

20-18-1558	-- 2-1/2" Pressure Guage LED Lighting	1	HME	45

PART NO	S	DESCRIPTION	QTY	ID	PG
20-18-1570		-- Pump Panel LED Lighting - WHITE/RED	1	HME	45
20-18-2042		-- Drain Discharges - 90° Ports with Drain Tubing	1	HME	45
20-18-2404		-- Switch, Air Horn Activation, Mtd PPanel, Push Button w/Lbl	1	HME	46
30-26-0410		-- Gauge, (1) Water Tank Level - FRC Tank Vision	1	HME	46
30-26-1000	>	-- Gauge, Add'l, (2)Water Tnk Gg, Whelen "PSTANK" LED, Cab	1	HME	46
		Side			
30-26-1025		-- Gauge, (1)Water Tank Gauge, Whelen "PSTANK" LED, Rear	1	HME	46
		Side Mount Pumps	1	HME	
20-21-0800		-- Pump, Midship, Hale "Q-Max", 1250-2250 GPM - (G Gearbox)	1	HME	46
20-26-1000		-- Pump Rating, Hale, 1500 GPM	1	HME	48
20-27-0100		-- Altitude Requirements, 0' to 2000 Feet Above Sea Level	1	HME	48
22-02-0400		-- Pump T-Case Cooling Line, 3/8" w/Class 1 Valve	1	HME	48
22-06-0900	>	-- Primer, Air Primer, Trident, On Hale Pump	1	HME	48
22-08-0200		-- Pump Shift, Pneumatic w/Label, Indicator Lgts, Mtd Cab/PPnl	1	HME	48
22-10-0600		-- Packing Seal, Adjustable, Manual, Split Graphite w/S/S	1	HME	48
22-11-0200		-- Anode, Water Pump, Indicator Weep Hole	1	HME	48
22-18-0400		-- Master Drain, Class 1, Manual Mtd Pump Panel	1	HME	49
22-20-0100		-- Certified NFPA Pump Test, Completed Apparatus Certificate	1	HME	49
22-24-0200		-- Pump Warranty, Hale, Five Year	1	HME	49
22-30-0200		-- Electronic Manuals, Pump Service and Operation	1	HME	49
		Steamer Inlets	1	HME	
24-02-1000		-- Steamer Inlet, 6" NST Thread, L/S w/Strainer - Hale	1	HME	49
24-08-0550		-- Intake Valve, Hale MIV-M, L/S, Manual	1	HME	49
22-14-1710		-- Intake Pressure Relief Valve, Manufacturers Choice	1	HME	49
24-08-2010	>	-- MIV Individual Bleeder - Left Side Pump Panel	1	HME	49
30-40-2641		-- 6" NST F to 4" Storz - Rigid Handle - Rigid - Strt (Qty)	1	HME	50
30-40-5010		-- (Qty) 4" Storz w/Cap & Lanyard	1	HME	50
24-02-1200		-- Steamer Inlet, 6" NST Thread, R/S w/Strainer - Hale	1	HME	50
24-08-1000		-- Power Intake Vlv, Hale MIV-E, R/S, Elec, Mtd R/S PPanel	1	HME	50
22-14-1710		-- Intake Pressure Relief Valve, Manufacturers Choice	1	HME	50

24-08-2020	>	-- MIV Individual Bleeder - Right Side Pump Panel	1	HME	50
30-40-2641		-- 6" NST F to 4" Storz - Rigid Handle - Rigid - Strt (Qty)	1	HME	50
30-40-5010		-- (Qty) 4" Storz w/Cap & Lanyard	1	HME	50
24-08-5030	>	-- Primer / Bleeder Selector Valve, Gated Suctions	1	HME	50
24-08-5040		-- Primer/Bleeder Selector Piped To L/S Gated Suction	1	HME	50
24-08-5050		-- PrimerBleeder Selector Piped To R/S Gated Suction	1	HME	50
24-08-5060		-- Primer/Bleeder Selector Piped To Front Gated Suction	1	HME	51
Tank Fill - Pump Panel Options			1	HME	
Front Suction			1	HME	
24-12-0400	>	-- Front Suction, 5" Gated	1	HME	51
24-12-1120		-- Drain Valve - Manual - Akron Push-Pull - Remote Controlled	1	HME	51
24-14-0400		-- Valve, Akron #7950, Elec Operated w/Switch	1	HME	51
Rear Pump Inlets / Suctions			1	HME	
Left Side Small Intake			1	HME	
24-21-0030		-- Pump Side Intake, Left Side - Rear - Side Operated	1	HME	51
24-21-0425		-- Suction Inlet, Side 2.5" - Side Operated Module	1	HME	51
24-21-1025		-- Suction Valve Control, Push-Pull Type, Side, Adj To Valve	1	HME	51
30-40-1125		-- Intake Plug, (Qty) 2.5" w/Cap & Chain	1	HME	51
24-21-2000		-- No Left Forward Intake Required - Pump Side	1	HME	
Right Side Small Intake			1	HME	
24-21-2004		-- No Right Rear Intake Required - Pump Side	1	HME	
Left Side Pump Panel Discharges			1	HME	
26-03-0020		-- #1 Discharge, Left Side - Side Operated	1	HME	51
26-03-0425		-- Discharge, Side, 2.5" - 30 degree Elbow - Manual Control	1	HME	51
30-41-5025		-- Discharge Cap, (Qty) 2.5" Chrome Vented Rocker Lug	1	HME	51
		w/Chain			
26-03-0030		-- #2 Discharge, Left Side - Side Operated	1	HME	51
26-03-0425		-- Discharge, Side, 2.5" - 30 degree Elbow - Manual Control	1	HME	51
30-41-5025		-- Discharge Cap, (Qty) 2.5" Chrome Vented Rocker Lug	1	HME	51
		w/Chain			

PART NO	S	DESCRIPTION	QTY	ID	PG
26-03-0040		-- No Left Side #2R Discharge Required	1	HME	51

Right Side Pump Panel Discharges			1	HME	
26-03-0220		-- #3 Discharge, Right Side - Side or Top Operated	1	HME	52
26-03-0425		-- Discharge, Side, 2.5" - 30 degree Elbow - Manual Control	1	HME	52
30-41-5025		-- Discharge Cap, (Qty) 2.5" Chrome Vented Rocker Lug	1	HME	52
		w/Chain			
26-03-0230		-- #4 Discharge, Right Side - Side or Top Operated	1	HME	52
26-03-0430		-- Discharge, Side, 3" - 30 degree Elbow - Manual Control	1	HME	52
30-40-2341		-- 3" NST F to 4" Storz - Rocker Lug - Rigid - Strt (Qty)	1	HME	52
30-40-5010		-- (Qty) 4" Storz w/Cap & Lanyard	1	HME	52
26-03-0240		-- No Right Side #4R Discharge Required	1	HME	52
Rear Discharges			1	HME	
26-06-0450	>	-- Discharge, 3" R/S Rear w/Manual Control, 30Deg Elbow	1	HME	52
26-06-0600		-- Discharge, 2.5" L/S Rear w/1/4Trn, SwngOut Vlv & 30Deg Elbw	1	HME	52
30-24-0400	>	-- Water Tank Sleeve, (1) 4" Rear Intake/Discharge	1	HME	52
30-41-5025		-- Discharge Cap, (Qty) 2.5" Chrome Vented Rocker Lug	1	HME	52
		w/Chain			
30-24-0400	>	-- Water Tank Sleeve, (1) 4" Rear Intake/Discharge	1	HME	52
30-40-2341		-- 3" NST F to 4" Storz - Rocker Lug - Rigid - Strt (Qty)	1	HME	52
30-40-5010		-- (Qty) 4" Storz w/Cap & Lanyard	1	HME	53
Front Bumper Jumlines			1	HME	
26-08-0600		-- Frt Jumlaine, 1.5" w/2" Plmbg, 1/4TrnVlv w/90 Dg Swvl Adptr	1	HME	53
26-09-0510		-- Swivel On Gravelshield Next to Hosewell	1	HME	53
26-10-0800		-- Valve Control, 2" Manual, Locking	1	HME	53
26-12-0500		-- Drain Valve, Class 1, 3/4", Automatic	1	HME	53
Deluge (Deck Gun) Piping			1	HME	
28-02-0400	>	-- Piping, 3" Deluge Riser, AbvPmp w/ 3" 1/4Trn & S/S Pipe	1	HME	53
26-12-0400		-- Drain Valve - Manual - Manual 1/4 Turn	1	HME	53
28-02-0555		-- Fixed Riser Piping, NPT Termination	1	HME	53
28-02-0800		-- Deck Gun Cntrl, 3" Manual Slow Close	1	HME	53
Crosslay Assemblies			1	HME	
28-11-1010		-- No Crosslay Assemblies Required - Side	1	HME	53
Speedlay Assemblies			1	HME	
28-21-0250		-- Speedlay, (3) Beds, 1.5" NST/ 1.5" NST / 2.5" NST - Side Op	1	HME	53
28-21-0310		-- Speedlay - Top, 1-1/2" NST w/2" Piping and Valve	1	HME	53

26-12-0400		-- Drain Valve - Manual - Manual 1/4 Turn	1	HME	54
28-21-0315		-- Speedlay - Middle, 1-1/2" NST w/2" Piping and Valve	1	HME	54
26-12-0400		-- Drain Valve - Manual - Manual 1/4 Turn	1	HME	54
28-21-0430		-- Speedlay - Bottom, 2-1/2" NST w/2-1/2" Piping and Valve	1	HME	54
26-12-0400		-- Drain Valve - Manual - Manual 1/4 Turn	1	HME	54
28-21-6030		-- Speedlay Front Wall - Brushed Stainless - Side Mount	1	HME	54
28-21-7020	>	-- Hose Tray, (Qty), Aluminum, Removable	3	HME	54
28-21-8010		-- Poly Guides, Speedlay Hose Openings	1	HME	54
28-21-9020	S <	-- Speedlay, Vinyl Side Cover (3) Beds	1	HME	54
28-21-9030		-- Vinyl End Flap Color, Speedlay, Vinyl, Midnight Black	1	HME	55
Booster Reels			1	HME	
Hosebed Preconnects			1	HME	
Ball Valves			1	HME	
30-00-0300		-- Ball Valves, Elkhart, Brass	1	HME	55
Tank Plumbing and Indicators / Gauges			1	HME	
30-20-0200		-- Piping, Tank To Pump, 3" w/3" Ball Vlv	1	HME	55
30-22-0400		-- Tank Refill, 2" Line w/ 1/4 Trn Bll Vlv	1	HME	55
Foam Systems			1	HME	
20-32-4700	>	Foam System, Hale "FoamLogix" 2.1A	1	HME	55
20-32-5052		-- Class 'A' Foam Operation Only	1	HME	57
20-32-7075		-- Foam Tank Refill System, HME Ahrens-Fox System	1	HME	57
20-34-0200	>	-- Foam Syst Outlets - Max Four outlets	1	HME	58
20-34-0525	>	-- Foam Outlet, Jumpline	1	HME	58
20-34-0635	>	-- Foam Outlet, (3) Speedlays, (2) 1-1/2" / (1) 2-1/2" Dschrg	1	HME	58
20-36-0600		-- Controls, Foam System, Hale (FoamLogix Controller) - Pump	1	HME	58
Operators Panel					

PART NO	S	DESCRIPTION	QTY	ID	PG
22-02-0800	>	Heat Exchanger Line, Gated, Custom	1	HME	59
Discharge Special Thread Adapters			1	HME	
== Pumper Components & Equipment - 4.001 ==			1	HME	59
08-22-2001	>	Apparatus Body Designation, Model Ahrens-Fox	1	HME	
Water / Foam Tanks and Equipment			1	HME	
30-02-0300		Water Tank Cnstrctn, Poly w/Tnk Lid, FillTwr, Ovrlw	1	HME	59

30-14-3000	S <	-- Foam Tank, (1) 30 Glns, Cls A, Poly, External, Dunnage	1	HME	59
30-28-0210		-- Foam Tank Level Gauge, FRC	1	HME	60
34-04-0800	>	-- Hosebed Bulkhead, (1), Stainless Steel	1	HME	60
30-18-0200		-- Tank Mounting, Cradle Mtd, 8" x 8" x 4" x .250"	1	HME	60
30-18-0700		-- Tank Cradle - Hot Dip Galvanized	1	HME	60
APPARATUS BODY DESIGN AND CONSTRUCTION			1	HME	
32-02-0200		Body Design and Construction, Pumper, Stainless Steel	1	HME	60
32-02-9000		-- Compartment Interior Finish	1	HME	62
32-05-0102		-- Brushed Stainless Compartment Roof - Safety Tape Walkway	1	HME	62
46-18-1000		-- Rear Tailboard, 12", LaserGrip Stainless Steel	1	HME	62
EXTERIOR COMPARTMENTATION AND EQUIPMENT			1	HME	
40-01-2110		Frame Extension, Rear	1	HME	62
40-01-2210		-- Rear Frame Extension and Body Mounts Hot Dip Galvanized	1	HME	62
40-02-0200		Ext Compartment Design and Construction, Modular, Bolted	1	HME	63
40-02-0204		-- Compartment Ventilation w/Filtration	1	HME	63
46-28-0710		-- No Exhaust Tailpipe Heatshield Required	1	HME	
40-10-0200		Long Body Configs, Approx 600 - 1676 Gallon Capacities	1	HME	
40-10-1050	>	-- 8BW) 82"/82", FH/RD Ext Cmpts w/ThruTnk, TTnk, 1614-1790GlS,	1	HME	
		69", 73" HB			
30-08-4101	S <	-- Water Tank Capacity, T-Tank, 1625 US Gallons - TT - 8BW 73" HB	1	HME	63
30-02-1010		-- Tank Fill Tower, 10" x 14", w/6" Vent	1	HME	63
30-12-5650		-- Cubic Ft, Body 179, 164" OAL	1	HME	63
30-23-0100	>	-- Direct Tank Fill, Left Rear	1	HME	63
30-23-2100		-- 1/4 Turn Valve - 2-1/2"	1	HME	63
30-23-3100		-- Direct Control - Self Locking on Valve	1	HME	64
30-40-1125		-- Intake Plug, (Qty) 2.5" w/Cap & Chain	1	HME	64
HOSEBED			1	HME	
34-02-0021		-- Hosebed, Double High Side Pumper Body - Ladders Thru &	1	HME	64
		Beam - Tall Side Walls			
34-03-0510		-- Hosebed, 24" Walls, Double High Side	1	HME	64
Hard Suction Tray - 10 Foot			1	HME	
34-04-0600	>	-- Dividers, (Qty) Hosebed, Adjustable, Smth Alum w/Radius Cmr	2	HME	64
34-06-0400		-- Hosebed Cover, Black	1	HME	64
LEFT SIDE EXTERIOR COMPARTMENT DIMENSIONS			1	HME	
40-12-1600		-- 82"/82", Ext Cmpts, L/S, 56"/52"/51" W x 12"/24" D, FH/RD	1	HME	64

40-15-0160	-- Roll Up Doors, L/S, Satin Anodized Finish - Lg Bdy - LSL	1	HME	64
40-16-0400	-- Door Latches, L/S, Non-Locking Lift Bar w/Door Ajar Switch	1	HME	65
FENDER CONFIGURATIONS		1	HME	
41-00-0400	-- Wheel Area, Single Axle, - Rr SCBA Tubes - FFS	1	HME	65
46-02-0200	-- Fuel Fill, L/S Rr Fndr w/Door, Label, Vent Line	1	HME	65
46-06-0400	-- Fenderettes and Wheel Well Liners - Stainless	1	HME	65
46-08-0200	-- Mud Flaps, Rear	1	HME	65
46-28-0407	-- SCBA Tubes, (7) Rear Wheelwell, (3) L/S - (4) R/S, Sngl Axle	1	HME	65
46-28-0680	-- SCBA Bottle Retention Strap(s)	1	HME	65
RIGHT SIDE EXTERIOR COMPARTMENT DIMENSIONS		1	HME	
42-02-1800	-- 82"/82", Ext Compts, R/S, 56"/52"/51" W x 12"/24" D, FH/RD	1	HME	65
42-07-0160	-- Roll Up Doors, R/S, Satin Anodized Finish - Lg Bdy - LSL	1	HME	66
42-08-0400	-- Door Latches, R/S, Non-Locking Lift Bar w/Door Ajar Switch	1	HME	66
EXTERIOR BODY COMPONENTS		1	HME	
46-05-0640	-- Rubrail, Body, LED Strip, Armor Guard, Warning/Ground - Long	1	HME	66
Body - 14' Rescue				
46-06-0462	-- Painted Apparatus Body - Pumper	1	HME	66
46-06-0602	-- Painted Apparatus Body, Wheel Well Fender Panels	1	HME	66
46-06-0610	> -- Painted Hosebed / Coffin Cmpt Exterior Side Walls	1	HME	66

PART NO	S	DESCRIPTION	QTY	ID	PG
46-06-0612	>	-- Painted Hosebed / Coffin Cmpt Exterior Front Wall	1	HME	66
46-10-0700		-- Lights, Compartment, LED Strip, Armor Protected - White/Red	1	HME	66
46-15-0410		-- Rear - Center - RR1 Half Height - 63" 69" 73" HB	1	HME	67
42-12-0200		-- RR1, Ext Cmpt, Rear, 29" H x 48" W x 22" D, Half Height	1	HME	67
42-25-0200		-- Hinged Doors, Flush Mount, Double Pan Stainless	1	HME	67
42-08-0200		-- Door Latches, R/S, Hansen, Slam w/"D" Ring,	1	HME	67
Non-Locking					
84-04-5010		-- Chevron, Rear Body NFPA, 6" - Pumper Low Rear Door	1	HME	67
84-04-8002		-- Chevron Color - Red and Yellow Reflective	1	HME	67
42-14-0210	>	-- RR2, Ladder Stg Cmpt, Rear - Thru Tank - Std w/Multi Opt	1	HME	67
42-18-0410	>	-- RR2a, Multipurpose Storage, Inside Tank Cmpt, Upper Rear	1	HME	67
42-18-0520	>	-- Second Cmpt - (3) 6" Suction and Long Handled Tools	1	HME	67

42-28-0200		-- Hinged Door, Rear, Ladder Storage	1	HME	67
42-32-0710		-- Lighting, Rear Ladder Compartment	1	HME	68
46-26-0810		-- Lighting, White Color	1	HME	68
72-00-0010	S <	-- Thru The Tank Ladder Group - 10-Fold, 16-Roof, 28-2 Sec	1	HME	68
72-04-0600	>	-- Ladder, 16' Roof, Duo-Safety, Channel Rail, Aluminum	1	HME	68
72-06-0400		-- Ladder, 10' Fldng Attic, Duo-Safety, Aluminum	1	HME	68
72-08-0402	>	-- Ladder, 28' Two-Sect Ext, Duo-Safety, Solid Beam	1	HME	68
		Aluminum			
46-20-0100		-- Step, Intermediate, mid position, Laser Grip, 8" Deep x Full	1	HME	68
		Width			
46-12-0250		-- Lights, Rear Body, LED Strip Intermediate Step, Activate	1	HME	68
		w/Parking Brk			
46-26-0100		-- Handrail, Rear, 69" Horizontal Hosebed	1	HME	68
46-26-0710		-- Lighting, Rear Horizontal Handrails	1	HME	68
46-26-0810		-- Lighting, White Color	1	HME	68
46-15-0516		-- Rear - Left Side - Egress Steps - two (2) folding step, lower (1)	1	HME	68
		fixed step			
46-16-0010		-- Step, Folding, (1) Mounted Left Rear Upper Hosebed Position	1	HME	68
46-18-0700		-- Standard Folding Step	1	HME	68
46-16-0012		-- Step, Folding, (1) Mounted Left Rear Upper Position	1	HME	68
46-18-0700		-- Standard Folding Step	1	HME	68
46-20-0110		-- Steps, Intermediate, (1) Lower, Left Corner, Laser Grip, 8" Deep	1	HME	69
46-26-0110		-- Handrail, Rear Left Side, 24" Vertical	1	HME	69
46-15-0608		-- Rear - Right Side - Egress Steps - upper (2) folding step, lower	1	HME	69
		(1) fixed step			
46-16-0013		-- Step, Folding, (1) Mounted Right Rear Hosebed Upper Position	1	HME	69
46-18-0700		-- Standard Folding Step	1	HME	69
46-16-0014		-- Step, Folding, (1) Mounted Right Rear Upper Position	1	HME	69
46-18-0700		-- Standard Folding Step	1	HME	69
46-20-0112		-- Steps, Intermediate, (1) Lower, Right Corner, Laser Grip, 8"	1	HME	69
		Deep			
46-26-0120		-- Handrail, Rear Right Side, 24" Vertical	1	HME	69
46-16-0305		-- Steps, (4) Four, Folding, Mounted Front of Body, Per NFPA	1	HME	69
46-18-0700		-- Standard Folding Step	4	HME	69

46-16-0307	-- Steps, Folding, 2-Extra Mounted Front of Body	1	HME	69
46-18-0700	-- Standard Folding Step	2	HME	69
Exterior Body Equipment / Mounting Devices		1	HME	
58-02-0100	-- Floodlight, Maxxima, (1) MWL-36, 2100 Lumens, Mnt Frt R/S Hsbd	1	HME	69
SCENE LIGHTING - PUMPER / RESCUE		1	HME	
58-09-3012	-- Body Side Scene Lights Required - Pumper / Rescue	1	HME	69
58-09-5060	-- Scene Lights, FRC LED Scene Light w/Chrome Trim	4	HME	69
58-09-7002	-- Driver's Scene Light Switch	1	HME	70
58-09-4012	-- Body Rear Scene Lights Required	1	HME	70
58-09-5060	-- Scene Lights, FRC LED Scene Light w/Chrome Trim	2	HME	70
58-09-6040	-- Rear Scene Lt. Switch w/Pkg Brk Over-Ride & Cab & Reverse	1	HME	70
58-10-8008	> -- One (1) Forward Cab LED / Quartz Light	1	HME	70
58-10-8013	-- FRC, Evolution II, LED DC 11K LM	1	HME	70
58-10-8900	-- White Brow Light Housing	1	HME	70

PART NO	S	DESCRIPTION	QTY	ID	PG
58-18-0102		-- Switch, Remote, 12 V, Mtd Cab	1	HME	70
58-14-0100		-- FRC - LF Corner - High Side	1	HME	70
58-15-1008		-- FRC, Evolution II, LED DC 11K LM	1	HME	70
58-15-8004		-- Lamphead ON / OFF Switch	1	HME	71
58-15-8010		-- FRC, Bottom Raise Pole - 530	1	HME	71
58-14-0110		-- FRC - RF Corner - High Side	1	HME	71
58-15-1008		-- FRC, Evolution II, LED DC 11K LM	1	HME	71
58-15-8004		-- Lamphead ON / OFF Switch	1	HME	71
58-15-8010		-- FRC, Bottom Raise Pole - 530	1	HME	71
58-14-0120		-- FRC - LR Corner - High Side	1	HME	71
58-15-1008		-- FRC, Evolution II, LED DC 11K LM	1	HME	71
58-15-8004		-- Lamphead ON / OFF Switch	1	HME	71
58-15-8010		-- FRC, Bottom Raise Pole - 530	1	HME	71
58-14-0130		-- FRC - RR Corner - High Side	1	HME	71
58-15-1008		-- FRC, Evolution II, LED DC 11K LM	1	HME	71
58-15-8004		-- Lamphead ON / OFF Switch	1	HME	71
58-15-8010		-- FRC, Bottom Raise Pole - 530	1	HME	72

RECEIVER HITCH / PORTABLE WINCH			1	HME	
SHELVES			1	HME	
48-02-0600		Shelves, Deep (Qty) Adjustable w/1.5" Flange, .190" Alum	1	HME	72
48-02-1000	S	-- Shelves Location, Specify Ext Compts	1	HME	72
48-08-0600		-- Dri-Dek Mat, Installed (Qty) Shelves/Trays, Ext Compt	1	HME	72
48-08-1000	S	-- Dri-Dek Mat Locations, Specify Ext Compts/Shelves/Trays	1	HME	72
48-10-1010		-- Dri-Dek Color - Black	1	HME	72
TRAYS			1	HME	
48-04-1600		> Trays, (Qty), Pullout w/Slides & Gas Shck, .190" Alm 250#	3	HME	72
48-04-2000	S	-- Pullout Trays, Locations, Specify Ext Compts	3	HME	72
48-08-0600		-- Dri-Dek Mat, Installed (Qty) Shelves/Trays, Ext Compt	3	HME	72
48-08-1000	S	-- Dri-Dek Mat Locations, Specify Ext Compts/Shelves/Trays	3	HME	72
48-10-1010		-- Dri-Dek Color - Black	3	HME	72
48-04-2200		Tray, (Qty) HD, Pullout w/Slides & Gas Shck, .190" Alm, 500	1	HME	72
48-04-2210	S	-- Heavy Duty Pullout Tray Location, Specify Ext Compt	1	HME	72
48-08-0600		-- Dri-Dek Mat, Installed (Qty) Shelves/Trays, Ext Compt	1	HME	72
48-08-1000	S	-- Dri-Dek Mat Locations, Specify Ext Compts/Shelves/Trays	1	HME	73
48-10-1010		-- Dri-Dek Color - Black	1	HME	73
48-04-2600		> Trays, (Qty), Adj, Pullout w/Slides & Gas Shck, 250#	2	HME	73
48-04-2000	S	-- Pullout Trays, Locations, Specify Ext Compts	2	HME	73
48-08-0600		-- Dri-Dek Mat, Installed (Qty) Shelves/Trays, Ext Compt	2	HME	73
48-08-1000	S	-- Dri-Dek Mat Locations, Specify Ext Compts/Shelves/Trays	2	HME	73
48-10-1010		-- Dri-Dek Color - Black	2	HME	73
OUT AND DOWN SHELVES			1	HME	
FOXTRAX			1	HME	
48-14-0600		Toolboards, (Qty) FoxTrax, Alum, Mtd Rr Wall, Spcfy Ext Com	4	HME	73
48-14-1000	S	-- Toolboard Locations, Specify Ext Compts	4	HME	73
VERTICAL DIVIDERS AND TOOLBOARDS			1	HME	
TOOL BOXES			1	HME	
12 VOLT ELECTRICAL SYSTEM			1	HME	
50-02-0200		Electrical System, 12V, Body, Multiplexed w/Circuit Brkr Pnl	1	HME	73
DIESEL AND GAS GENERATORS AND COMPONENTS			1	HME	
LIGHTING SELECTION			1	HME	
54-90-0100		MAKE ICC AND WARNING LIGHT SELECTIONS HERE	1	HME	
55-01-0010		-- Custom Cab - Double Hi Side Body	1	HME	
55-02-1002		-- Custom Cab - Cab - LED - ICC Lighting - Whelen OS Series	1	HME	74
55-02-2000		-- Body - LED - ICC Lighting with Body Side Clearance LED &	1	HME	74

Reflector				
55-03-0150	-- Headlights - LED - Daytime Running - Custom Cab	1	HME	74
55-04-0700	-- Frt Turn Signal - FedSig - LED - Outside Hdlts - Custom Cab	1	HME	74
55-05-0132	-- Rear Stop/Tail/Turn - Whelen	1	HME	74
55-05-0144	-- LED Backup Lights - Whelen	1	HME	74
55-06-0480	-- Back Up Alarm	1	HME	74

PART NO	S	DESCRIPTION	QTY	ID	PG
55-06-1000		-- License Plate Bracket w/LED Light	1	HME	74
57-01-0332		-- Whelen - LED - CUSTOM Pumper/Tanker/Rescue	1	HME	
57-04-3302		-- Lightbar, Frt, Whelen - Freedom - LED	1	HME	74
57-20-3302		-- Cab, Lwr, Frt, Whelen - C6 SurfaceMax - Super LED	1	HME	75
57-03-1000		-- Lens Color - Both Red	1	HME	75
57-30-3304	>	-- Bumper Side, Whelen - C6 SurfaceMax Series - Super LED	1	HME	75
57-03-1000		-- Lens Color - Both Red	1	HME	75
57-32-3304		-- Cab Side Over Wheel, Whelen - C6 SurfaceMax Series - Super	1	HME	75
		LED			
57-03-1000		-- Lens Color - Both Red	1	HME	75
57-80-1102		-- High Beam Alternating Headlights	1	HME	75
57-02-0326		-- Whelen - LED - Double Hi Side Body	1	HME	
57-34-3304		-- Body, Side Over Wheel, Whelen - C6 SurfaceMax Series - Super	1	HME	76
		LED			
57-03-1000		-- Lens Color - Both Red	1	HME	76
57-40-3304		-- Upper Rear, Whelen - Beacons - Super LED	1	HME	76
57-03-3010	S <	-- Lens Color - Driver's Blue / Officer's Amber	1	HME	76
57-42-3304		-- Lower Rear, Whelen - C6 SurfaceMax Series - Super LED	1	HME	76
57-03-1000		-- Lens Color - Both Red	1	HME	76
57-44-3303		-- Whelen - LED - TAL85 Traffic Advisor	1	HME	76
		COMMUNICATION, MISC EQUIPMENT, LADDERS	1	HME	
70-02-0400		Labels, Identification & Safety, Mtd Drvr's Compt/Pump Panel	1	HME	76
70-24-1000		Wheel Chocks, (2) Worden HWGY, Yellow Alum w/Slid-Out Brkt	1	HME	77
70-26-0600	>	SCBA Brackets, (Qty) Zico, Mtd Ext Compts	3	HME	77
70-26-0810	S	-- Specify SCBA Bracket Location	3	HME	77

ELECTRIC CORD REELS AND COMPONENTS			1	HME	
HYDRAULIC HOSE REELS			1	HME	
UTILITY AIR REELS			1	HME	
HARD SUCTION HOSE			1	HME	
SUCTION STRAINERS			1	HME	
REFLECTIVE STRIPING			1	HME	
84-02-2000	Striping, 1"x4"x1" Scotchlite, Reflective, Vhcl Prmtr		1	HME	77
84-04-1210	-- Body Stripe Flare, 45 Degree Up And Over Rear Axle		1	HME	78
84-04-3010	-- Base Stripe Color, White Reflective		1	HME	78
84-04-3110	-- Accent Stripe Color, White Reflective		1	HME	78
MISC. ITEMS			1	HME	
WARRANTIES, MANUALS, MISCELLANEOUS DOCUMENTS			1	HME	
90-03-1000	Water Tank Warranty - Service Life		1	HME	78
v4.001 - RELEASE DATE - 08/13/2018			1	HME	
== Limited Warranty - 4.001 ==			1	HM	78
10-00-0010	Limited Warranty		1	HM	78
20-00-0010	-- General Warranty Period - 1 Year		1	HM	85
40-00-0005	-- Cab & Body Paint Warranty Period - 5 Years		1	HM	85
v3.001 - RELEASE DATE - 04/13/2018			1	HM	
DEALER ===== DEALER ===== DEALER			1	DLR	85
LR-AA-PREC	PRECONSTRUCTION / ORDER CONFERENCE		1	DLR	85
LR-DA-DSI1	S	DEALER SUPPLIED ITEMS	1	DLR	86
LR-DL-AD01	1.5 NST F x 1.5 NPSH M ADAPTER		3	DLR	86
LR-DL-FQ61	FIREQUIP MAXIFLEX SUCTION HOSE 6 x 10		3	DLR	86
LR-DL-KFB6	KOCHEK FBS60 - 6" FLOATING BARREL STRAINER (1250 to 1500GPM)		1	DLR	86
LR-DL-KLL6	KOCHEK LL60 - 6" LOW LEVEL STRAINER (1250 to 1500GPM)		1	DLR	86
LR-DM-LTRA	S	LETTERING ALLOWANCE	1	DLR	86
LR-DM-MTNA	S	EQUIPMENT MOUNTING ALLOWANCE	1	DLR	87
LR-IB-TRCK	DELIVERY - FROM FACTORY		1	DLR	87
LR-RF-TXFR	S	INSTALL CUSTOMER SUPPLIED MOBILE RADIO	1	DLR	87
LR-TT-DPRP	DEALER PREP - LRFA		1	DLR	87
LR-TT-DTDP	DELIVERY TO CUSTOMER		1	DLR	87
LR-TT-TEMP	TEMPORARY REG & STATE INSPECTION		1	DLR	87
LR-TT-W123	APPARATUS FAMILIARIZATION - PUMPER/TANKER		1	DLR	87

Town of Deering
New Hampshire
Warrant and Budget
2019

To the inhabitants of the Town of Deering in the County of Hillsborough in the state of New Hampshire qualified to vote in town affairs:

GREETINGS!

You are hereby notified to meet at the Town Hall in said Deering on **Tuesday the 12th day of March, 2019 at 11:00 am** in the morning to act upon the following subjects:

Article 1: To choose all necessary Town Officers for the ensuing year.

Selectman	3-year term
Library Trustee	3-year term
Cemetery Trustee	3-year term
Trustee of Trust Funds	3-year term
Town Clerk/Tax Collector	3-year term
Supervisors of the Checklist	6-year term
Supervisors of the Checklist	2-year term

POLLS WILL OPEN AT 11:00 am and remain open until **7:00 pm**.

ADDITIONALLY, pursuant to RSA 39:2-a, you are hereby notified that Articles 2 through 11 will be taken upon Saturday the 16th of March, 2019 next at 9:00AM in the morning at Town Hall.

Article 2: To Accept Town Reports

To see if the Town will vote to accept the 2019 reports of the Town Officials, agents and committees, and to accept the 2017 auditor's report.

The Board of Selectmen Recommends this Article.

Article 3: Purchase of a Fire Engine

To see if the Town will vote to raise and appropriate FIVE HUNDRED FIFTY THOUSAND DOLLARS (\$550,000 – gross budget) to purchase and equip a new fire engine and to be funded from the Fire Department Equipment Replacement fund in the amount of THREE HUNDRED FIFTY THOUSAND DOLLARS (\$350,000) and to authorize the issuance of not more than TWO HUNDRED THOUSAND DOLLARS (\$200,000) of bonds or notes in accordance with the provisions of the Municipal Finance Act (RSA 33) and to authorize the Board of Selectmen to issue and negotiate such bonds or notes and to determine the rate of interest thereon and further to raise and appropriate an additional sum of EIGHT THOUSAND SEVEN HUNDRED TWENTY DOLLARS (\$8,720) for the first year's interest payment on the bond. Approval requires 2/3 ballot vote.

Article 4: To Appropriate Operating Budget Funds for the Year 2019

To see if the Town will vote to raise and appropriate the sum of two million one-hundred five thousand nine hundred twenty dollars (\$2,105,920) for the purpose of funding general municipal operations not including any amount raised and appropriated in any separate warrant article.

Acct	Function	2019
4130	Executive	218,698
4140	Elections, Registration, Vital Statistics	38,049
4150	Finance Administration	70,574
4152	Assessing Revaluation	30,695
4153	Legal Expense	18,000
4191	Planning & Zoning	8,906
4194	General Government Buildings	33,800
4195	Cemeteries	16,150
4196	Insurance	53,219
4197	Advertising & Regional Association	5,389
4210	Police	348,177
4215	Ambulance	139,480
4220	Fire	115,119
4240	Building Inspection	13,518
4290	Emergency Management	1
4299	Other Public Safety - Dispatching	36,718
4300	Highways & Streets	695,304
4324	Solid Waste Disposal	111,000
4415	Health Agencies & Programs	5,195
4442	Direct Assistance	15,003
4520	Parks & Recreation	25,000
4550	Library	2,375
4611	Conservation Commission	5,170
4711	Bonds, Notes - Principal	87,500
4722	Bonds, Notes - Interest	7,881
4723	Tax Anticipation Notes	5,000
	Total	2,105,920

The Board of Selectmen Recommends this Article

Article 5: To Add Funds to Established Trust Funds

To see if the Town will vote to raise and appropriate the sum of THREE HUNDRED TWENTY-FIVE THOUSAND SEVEN HUNDRED FIFTY DOLLARS (\$325,750) to be added to the previously established Capital Reserve and/or Expendable Trust Funds and to fund the sum of FIFTY THOUSAND DOLLARS (\$50,000) from the unassigned fund balance as of December 31, 2018 for the following accounts in said amounts:

Acct	Fund	2019
60.1010.00.054	FD Vehicle Replacement / CRF	\$ 50,000.00
	Total Unassigned Fund Balance	\$ 50,000.00

Acct	Fund	2018	2019
60.1010.00.054	FD Vehicle Replacement / CRF	\$ 120,000.00	\$ 50,000.00
60.1010.00.055	HWY Vehicle Replacement / CRF	\$ 70,000.00	\$ 20,000.00
60.1010.00.060	Assessing / ETF	\$ 9,300.00	\$ 9,300.00
60.1010.00.062	Celebration (A)	\$ 1,000.00	\$ 1,000.00
60.1010.00.063	Cemetery Maint / ETF	\$ 3,000.00	\$ 3,000.00
60.1010.00.064	Computer Systems / ETF	\$ 2,300.00	\$ -
60.1010.00.065	Exotic Weed Control / ETF	\$ 5,000.00	\$ 5,000.00
60.1010.00.066	FD Building Maint / ETF	\$ 5,000.00	\$ 5,000.00
60.1010.00.069	Gov't Bld Improvement / ETF	\$ 20,000.00	\$ 20,000.00
60.1010.00.071	Health & Safety / ETF	\$ 1,500.00	\$ 1,500.00
60.1010.00.075	Library Bld Maint / ETF	\$ -	\$ -
60.1010.00.076	Master Plan / ETF	\$ 1,250.00	\$ 1,250.00
60.1010.00.078	PD Ballistic Vest Replacement / ETF	\$ 700.00	\$ 700.00
60.1010.00.079	PD Equipment Replacement / ETF	\$ -	\$ -
60.1010.00.080	PD Vehicle Replacement / ETF	\$ 12,500.00	\$ 12,500.00
60.1010.00.082	Reservoir Usage / ETF	\$ 5,000.00	\$ 5,000.00
60.1010.00.083	Road Reconstruction / ETF	\$ 122,500.00	\$ 188,000.00
60.1010.00.084	FD Turnout Gear Replacement / ETF	\$ 5,000.00	\$ 2,500.00
60.1010.00.087	HWY Bld Improvement / ETF	\$ 20,000.00	\$ 1,000.00
	Total	\$ 404,050.00	\$ 325,750.00

The Board of Selectmen Recommends this Article

Article 6: Paving Town Hall Parking Lot

To see if the Town will vote to raise and appropriate THIRTY THOUSAND DOLLARS (\$30,000) to pave the Town Hall parking lot and to be funded from the unassigned fund balance as of December 31, 2018. This appropriation shall not raise any taxes and have no effect on the tax rate.

The Board of Selectmen Recommends this Article

Article 7: Power Purchase Agreement

To see if the Town will vote to authorize the Board of Selectmen to enter into a 20-year electric power purchase agreement with Revision Solar Impact Partners LLC, of Portland, ME who will install, own and maintain a solar energy system on the Town Office and Highway Department shed, and to grant a lease and easement for access to the location of the system. The Town will purchase the local solar energy at \$0.16/kWh during the first and second year, with a 2% increase each year thereafter, and includes an option to purchase the system in year six for an estimated amount of SEVENTY EIGHT THOUSAND ONE HUNDRED NINETY-SEVEN DOLLARS (\$78,197).

Recommended by the Board of Selectmen

Article 8: Solar Energy Expendable Trust Fund

To see if the town will vote to establish an expendable trust fund under the provisions of RSA 31:19-a, to be known as the Town Solar Energy Expendable Trust Fund for the purpose of providing funds for the purchase, installation, maintenance, repair, and replacement of solar arrays and / or panels on Town owned buildings and Town owned property and to name the Board of Selectmen as agents to expend and to raise and appropriate the sum of FIFTEEN THOUSAND SIX HUNDRED FORTY DOLLARS (\$15,640) to be placed into this fund and to be funded from the undesignated fund balance as of December 31, 2018. This appropriation shall not raise any taxes and have no effect on the tax rate.

Recommended by the Board of Selectmen

Article 9: Conversion of Town Clerk / Tax Collector Position to Full-Time

To see if the Town will vote to raise and appropriate TEN THOUSAND SEVEN HUNDRED TWENTY-NINE DOLLARS (\$10,729) to convert the part-time Town Clerk / Tax Collector position to a 35-hour full-time position. The cost items associated with the full-time position are as follows:

- Wages \$3,250.00
- FICA/MEDI \$ 249.00
- Life / Disability \$ 314.00
- Retirement \$ 156.00
- Health Insurance \$6,760.00

If approved these costs will be included in next year's operating budget.

Recommended by the Board of Selectmen

Article 10: Sale of Cemetery Lots

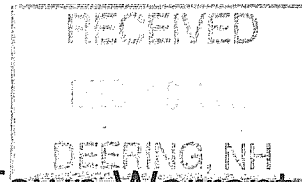
To see if the Town will vote to adopt the provisions of RSA 289:2-a, whereupon the proceeds from the sale of cemetery lots, including the perpetual care fee, shall be deposited into the Cemetery Maintenance Expendable Trust Fund.

Recommended by the Board of Selectmen

Article 11: To Transact Other Business

To transact any other business that may be brought before this meeting.

Given under our hands, February 7 th , 2018		
We certify and attest that on or before February 8 th we posted a true and attested copy of the within Warrant at the place of meeting, and like copies at the Town Office, and delivered the original to the TOWN CLERK.		
Printed Name	Position	Signature
Aaron Gill	Chair	
Allen Belouin	Selectman	
John Shaw	Selectman	



Petition for Deering Little Free Pantry on Town Warrant

The Little Free Panty has become a nation-wide movement, originating in Arkansas, in July of 2016. The LFP takes many forms, but in essence is a small box, filled with donations from community members, to encourage kindness, and to aide our food-insecure neighbors.

The Deering Women's Guild, and the Deering Community Church established the first Deering Little Free Pantry on October 7, 2018. Our goal is to establish more LFP's, some of which we are seeking to have on town property, as discussed last year, with Genara Clay, at a selectmen's meeting.

Below are a list of registered Deering voters, who support this idea:

- 1 ✓ Name: (please print) Genara C. Clay
Address: 475 Old County Rd, Deering, NH 03244
Signature: *Genara C. Clay* Nov. 6, 2018
- 2 ✓ Name: (please print) HAZEL VOGELIEN
Address: 749 CLEMENT HILL RD
Signature: *Hazel Vogelin*
- 3 ✓ Name: (please print) Jeanne T. Bartlett
Address: 64 Dudley Brook Rd.
Signature: *JT Bartlett*
- 4 ✓ Name: (please print) June Holm
Address: 2368 2nd NH Turnpike
Deering NH 03244
Signature: *June Holm*

Please Sign in

Gale Falmord

Long Falmord

Stephen Falker

Whisman

Whisman

Gary Samuels

John Pianta Jr

Genara Clay

Jackie Sawyer

Eric Stuffer