



## **DESIGN CLAUSE**

These specifications outline the components, installation methods, and operational characteristics KME is agreeing to provide in order to meet the purchaser's requirements. Subject to the terms of the purchase agreement, other construction details not explicitly listed in these specifications will be determined at the discretion of the builder. In the event the purchaser desires a different construction or installation not already described in these specifications, additional charges may apply, and quoted lead time commitments will be adjusted.

## **ENGINE CLAUSE**

If an L9 engine is **NOT** available or cannot be provided for that specific quote or build slot at time of production, you will **automatically be upgraded and charged for an X12 (or the X10 engine) with all costs associated with the upgrade being passed on to the end user. No exceptions.**

If a pre-2027 emission engine is **NOT** available at the time of build (***starting production on January 1, 2026***) your order will **automatically be upgraded and charged for either the 2027 engine compliant Cummins X-10 or X-15, with all associated costs being passed on to the end user. No exceptions.**

## **VEHICLE TRANSPORTATION - DEALER PROVIDED**

Transportation for the completed vehicle from KME Fire Apparatus in Nesquehoning, PA to the end user shall be provided by the sales representative.

## **PROPOSED BY - BULLDOG FIRE APPARATUS**

Bulldog Fire Apparatus is pleased to offer the proposed vehicle to meet the intent of the fire department specifications.

KME Fire Apparatus is a leading manufacturer in custom and commercial fire fighting vehicles.

Questions or concerns pertaining to this proposal can be answered by contacting the following KME representative:

Russ Smith  
Bulldog Fire Apparatus  
PO Box 58  
17 Winter Street  
Woodville, MA 01784

Phone: (877) 644-2707 / (508) 435-4054  
Cell: (603) 397-9918  
Fax: (508) 435-0250

Email: [rsmith@bulldogfa.com](mailto:rsmith@bulldogfa.com)  
Web: [www.bulldogfireapparatus.com](http://www.bulldogfireapparatus.com)



## **PROPOSED SERVICE BY - BULLDOG FIRE**

### **SERVICE CENTER AND PARTS DEPOT**

Bulldog Fire Apparatus  
WOODVILLE - MASSACHUSETTS  
KME APPARATUS SERVICE STATEMENT

The proposed KME Fire Apparatus vehicle is offered with complete single-source service performed by the regional KME factory authorized service center.

Service is provided by:

### **BULLDOG FIRE APPARATUS**

PO Box 58  
17 Winter Street  
Woodville MA 01784  
Phone (508) 435-4200

### **Service Center Capabilities:**

- Bulldog Fire Apparatus in Woodville, MA. celebrates fourteen (14) years of operation and employs eighteen (18) people. The factory authorized operation employs fifteen (15) full-time service mechanics to handle any service-related issues or operational improvements that you may desire.
- Bulldog Fire Apparatus employees EVTCC and ASE certified technicians.
- Bulldog Fire Apparatus operates one (1) mobile service trucks that offer In-Station Service repairs to your apparatus when needed.
- Bulldog Fire Apparatus offers sheet metal repair and fabrication, pump and electrical repair, aerial ladder service and repair, booster tank repair and replacement, and minor or major refurbishment capabilities. Bulldog maintains an environmentally approved fifty-five (55) foot down draft paint booth and apparatus paint center that meets or exceeds the fire service paint standards of all leading Fire Apparatus manufacturers.
- Bulldog Fire Apparatus offers factory authorized service and repairs to all makes of fire apparatus equipped with Hale, Waterous and Darley Pumps.
- Bulldog Fire Apparatus employees are protected by Workman's Compensation Insurance. A 1 Million Dollar Garage Keepers Liability Insurance Coverage and a 25 Million Dollar Product Liability Insurance Policy protect your fire department and your fire department equipment.

## **FAIR ETHICAL & LEGAL COMPETITION**

In order to ensure fair, ethical, and legal competition, neither original equipment manufacturer (OEM) nor parent company of the OEM shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

## **MATERIAL & WORKMANSHIP**

All equipment furnished shall be guaranteed to be new and of current manufacture, to meet all requirements of these specifications.



All workmanship shall be of high quality and accomplished in a professional manner so as to insure a functional apparatus with a pleasing, aesthetic appearance.

### **CONTRACT ADMINISTRATOR**

The successful bidder shall designate a contract administrator to provide a single point interface between the purchaser and the contractor on all matters concerning the contract.

### **APPROVAL DRAWING**

A detailed drawing of the apparatus shall be provided to the purchaser for approval before construction begins. A copy of this drawing shall also be provided to the manufacturer's representative. Upon purchaser's approval, the finalized drawing shall become a part of the total contract.

The drawing shall show, but is not limited to, such items as the chassis make and model, major components, location of lights, sirens, all compartment locations and dimensions, special suction, discharges, etc. The drawing shall be a visual interpretation of the apparatus as it is to be supplied.

### **DELIVERY**

Delivery of the apparatus to the customer shall remain the bidder's responsibility.

On initial delivery of the fire apparatus, a qualified and responsible representative of the contractor shall demonstrate the apparatus and provide initial instruction to representatives of the customer regarding the operation, care, and maintenance of the apparatus and equipment supplied.

### **VEHICLE FLUID PLATE**

As required by NFPA-1900, the contractor shall affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

A permanent plate in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle:

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



### **EXACT BLUEPRINT WITH BID**

A scale drawing of the specific apparatus being proposed shall be submitted WITH THE BID.

Drawings of similar units or demo units shall not be permitted.

Bidders should be clear that this provision is requiring a SCALE drawing of the truck which is actually being bid.

The drawing shall be done at the manufacturer's facility by the manufacturer's engineering department in order to guarantee the accuracy of the drawing.

Failure to comply with this requirement shall be grounds for rejection of the bid!

### **FAMA MEMBERSHIP**

The apparatus manufacturer must be a current member of the Fire Apparatus Manufacturer's Association (FAMA).

### **MANUFACTURED IN UNITED STATES**

The entire apparatus shall be assembled within the borders of the Continental United States to insure more readily available parts (without added costs and delays caused by tariffs and customs) and service.

### **AMP DRAW REPORT**

The bidder shall provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

A written load analysis, which shall include the following:

- The rating of the alternator.
- The minimum continuous load of each component that is specified per: Applicable NFPA-1900.
- Additional loads that, when added to the minimum continuous load, determine the total connected load.
- Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA-1900.

### **COOPERATIVE PURCHASING**

The Manufacturer shall be pleased to allow other public agencies to use the purchase agreement resulting from this invitation to bid unless the bidder expressly notes on the proposal form that prices are not available for tag-on.

The condition of such use by other agencies shall be that any such agency must make and pursue contact, purchase order/contract, and all contractual remedies with the successful bidder.

Such tag-ons shall be done so that the original purchasing agency has no responsibility for performance by either the manufacturer or the agency using the contract.



### **PRODUCTION LEVEL ELECTRICAL DRAWINGS**

KME shall provide production level harness drawings for the specific unit to be built.

### **INSPECTION TRIP (1)**

Bulldog Fire Apparatus shall provide one (1) factory inspection trip to Bulldog's PA facility.

Transportation, meals, lodging, and other requisite expenses shall be Bulldog's responsibility.

### **COMPLETION INFORMATION**

The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents.

- Owners name and address Apparatus manufacturer, model and serial number
- Chassis make, model and serial number
- Front tire size and total rated capacity in pounds
- Rear tire size and total rated capacity in pounds
- Chassis weight distribution in pounds with water and manufacturer mounted equipment, front and rear
- Engine make, model, serial number, rated horsepower, rated speed and governed speed
- Type of fuels and fuel tank capacity
- Electrical system voltage and alternator output in amps.
- Battery make, model and total capacity in cold crank amps (CCA)
- Transmission make, model, and serial number. If so equipped chassis transmission PTO(s) make, model and gear ratio
- Pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Pump transmission make, model, serial number and gear ratio
- Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Water tank certified capacity in gallons or liters
- Paint manufacturer and paint number(s)
- Company name and signature of responsible company representative
- Certification of slip resistance of all stepping, standing and walking surfaces.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturer's certification of suction capability.

If the apparatus has a fire pump or an industrial supply pump, a copy of the apparatus manufacturer's approval for stationary pumping applications.

If the apparatus has a fire pump or an industrial supply pump, the engine manufacturers certified brake horsepower curve for the engine furnished, showing the maximum governed speed.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturers certification of hydrostatic test.



If the apparatus has a fire pump or an industrial supply pump, the third party certification of inspection and test for the fire pump (if applicable).

If the apparatus has an aerial device the third party certification of inspection and test for the aerial device.

If the apparatus has an aerial device, all the technical information required for inspections to comply with NFPA 1911, Standards for Testing Fire Department Aerial Devices.

If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source (if applicable).

If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation.

Weight documents from certified scale - showing actual loading on the front axle, rear axle(s) and overall vehicle (with the water tank full but without personnel, equipment and hose) shall be supplied with the complete vehicle to determine compliance with NFPA-1900.

Written load analysis and results of electrical performance tests.

If the apparatus is equipped with a water tank, the certification of water tank capacity by the tank manufacturer.

#### **FMVSS REQUIREMENT**

The chassis shall be certified by the apparatus manufacturer as conforming to all applicable Federal Motor Vehicle Safety Standards in effect at the date of contract.

This shall be attested to by the attachment of a FMVSS certification label on the vehicle by the contractor who shall be recognized as the responsible final manufacturer.

#### **RECORDS**

The successful bidder shall be responsible for preparing and maintaining a record file of parts and assemblies used to manufacture the apparatus.

These records shall be maintained in the factory of the bidder for a minimum of twenty (20) years.

File shall contain copies of any and all reported deficiencies, all replacement parts required to maintain the apparatus, and original purchase documents including specifications, contract, invoices, incomplete chassis certificates, quality control reports and final delivery acceptance documents.

Newcastle Fire Department shall have access to any and all documents contained in this file upon official written request.



## **GENERAL CONSTRUCTION**

The complete apparatus, assemblies, subassemblies, component parts, etc., shall be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is to be subject.

All parts of the apparatus shall be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service.

All parts of the apparatus shall be strong enough to withstand general service under full load.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

Bidder's specifications must meet minimum requirements of N.F.P.A. Pamphlet #1901 and all State and Federal Department of Transportation vehicle regulations at time of sale of unit.

The apparatus shall be designed and constructed, and the equipment so mounted, with due consideration to distribution of the load between front and rear axles that all specified equipment, including a full complement of specified ground ladders, full water tank, loose equipment, and firefighters shall be carried without overloading or injuring the apparatus.

## **PRODUCT LIABILITY**

Each bidder shall supply proof of product liability and facility insurance equal to or exceeding \$30,000,000.00.

This shall be provided as part of the proposal.

## **PAINT CERTIFICATION**

The finish paint shall be certified by the apparatus manufacturer as conforming to all applicable Commercial Vehicle Paint Standards in effect at the date of contract.

This shall be attested to by the attachment of a Sikkens certification.

## **KME WARRANTY, STARTING ON DELIVERY DATE**

Warranty coverage by KME will begin on the date of delivery to the customer.

## **PRICES & PAYMENTS**

The bid price will be F.O.B. Destination, on a delivered and accepted basis at the Fire Department. Total price on KME's proposal sheet will include all items listed in these specifications. KME has computed pricing less federal and state taxes. It is understood that any applicable taxes will be added to the proposed prices, unless the purchaser furnishes appropriate tax-exempt forms.

## **INSTRUCTION MANUALS - TWO (2) SETS - USB**

In accordance with standard commercial practices, applicable to each vehicle (including body and special equipment) furnished under the contract, the following listed manuals and schematics, in the quantity specified, shall be provided at time of delivery of each vehicle.





The contractor shall supply at time of delivery, two (2) USB copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

The manual shall contain the following:

- Descriptions, specifications, and ratings of chassis, pump (if applicable), and aerial device
- Wiring diagrams
- Lubrication charts
- Operating instructions for the chassis, any major components such as a pump and any auxiliary systems
- Instructions regarding the frequency and procedures recommended for maintenance
- Parts replacement information

**!!! CRITICAL OVERALL HEIGHT REQUIREMENT !!! - "YES - 113" MAX HEIGHT**

This vehicle has a critical overall height restriction requirement due to fire station door height or obstruction within the fire department/district.

Maximum overall height of vehicle in the unloaded configuration cannot exceed: 113" (inches).

**!!! CRITICAL OVERALL LENGTH REQUIREMENT !!! - "NO**

**NFPA TREADPLATE CERTIFICATION**

All stepping, standing, and walking surfaces on the body shall meet NFPA 1900 anti-slip standards.

Aluminum tread plate utilized for stepping, standing, and walking surfaces shall be NFPA embossed compliant.

Upon request by the purchaser, the manufacturer shall supply proof of compliance with this requirement.

**VERTICAL TREAD PLATE - NON-EMBOSSSED**

The following vertical surfaces on the vehicle (if applicable) shall have non-embossed tread plate:

To include but not limited to:

- Rear of cab overlay
- Rear body overlay
- Front of body overlay
- Front pump house panel
- Custom cab step well
- Fender overlay
- Fender compartment doors
- Interior cab trim
- Upper body walkway walls
- Rescue body interior (walk-In/walk through)





## **"PUMPER FIRE APPARATUS" NFPA 2016 CHAPTERS**

The unit shall be designed to conform fully to the "Pumper Fire Apparatus" requirements as stated in the NFPA 1900 Standard (2024 Revision), which shall include the following required chapters as stated in this revision:

- Chapter 1 Administration
- Chapter 2 Referenced Publications
- Chapter 3 Definitions
- Chapter 4 General Requirements
- Chapter 5 Pumper Fire Apparatus
- Chapter 12 Chassis and Vehicle Components
- Chapter 13 Low Voltage Electrical Systems and Warning Devices
- Chapter 14 Driving and Crew Areas
- Chapter 15 Body, Compartments and Equipment Mounting
- Chapter 16 Fire Pumps and Associated Equipment
- Chapter 18 Water Tanks

## **NFPA "CHAPTER 20" FOAM SYSTEM REQUIREMENTS**

Chapter 20 Foam Proportioning Systems

## **NFPA "CHAPTER 22" 110 VOLT SYSTEM REQUIREMENTS**

Chapter 22 Line Voltage Electrical Systems

## **SAFETY SIGNS (NFPA REQUIRED)**

Safety sign(s) shall be located on the vehicle at the rear step, and at any cross walkway(s), to warn personnel that riding in or on these areas while the vehicle is in motion is prohibited.

## **THIRD PARTY TESTING**

If required by the specific chapters of NFPA-1900, the proposed unit shall be tested and certified by independent third party inspectors.

All test work for fire pumps outlined in NFPA 1900, Edition shall be conducted.

The third party inspectors shall provide the manufacturer a complete written examination and test report for each inspection performed at the manufacturer's facility.

This report specifies the points of inspection and results of such examinations and tests.

The inspectors performing the test work on the units are certified to Level II in the required NDT methods, under the requirements outlined in ASNT document CP-189.

The actual person(s) performing the inspection shall present for review proof of Level II Certification in the required NDT methods.

The apparatus manufacturer shall designate, in writing, who is qualified to witness and certify these test results.



Prior to submittal to the automotive fire apparatus manufacturer, the final Report shall be reviewed by the Supervisor of Fire Equipment Services and a Registered Professional Engineer, both of whom are directly involved with the aerial device certification program.

When the unit successfully meets all the requirements outlined in NFPA 1900, current edition, the third party inspector shall issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with NFPA- 1900.

### **120/240 VOLT ELECTRICAL SYSTEM TESTING**

All line voltage wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test shall be conducted between live parts and the neutral conductor and between live parts and the vehicle frame with any switches in the circuits closed. The test shall be conducted after all bodywork has been completed. The dielectric tester shall have a minimum 500 VA transformer with a sinusoidal output voltage that can be verified.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

The apparatus manufacturer shall perform the following operation test and shall certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The generator shall be started from a cold start condition and the line voltage electrical system shall be loaded to 100 percent of the nameplate voltage rating.

The following items shall be monitored and documented every 15 minutes:

- The cranking time until the generator starts and runs.
- The voltage, frequency, and amperes at continuous full rated load.
- The generator oil pressure, water temperature, transmission temperature, hydraulic temperature, and the battery rate charge, as applicable.
- The ambient temperature and altitude.

The generator shall operate at 100 percent of its nameplate wattage for a minimum of two (2) hours.

### **UL LINE VOLTAGE TESTING**

When the unit successfully meets all the requirements outlined in NFPA 1901, 2016 Edition, third party inspectors shall issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with the required line voltage section of NFPA.

### **CENTER CONSOLE - BRUSHED**

A center console fabricated from 1/8" aluminum shall be provided and mounted between the driver and officer's seats. The console shall be designed with a brush pewter upper and lower panel. The upper panel shall be the mounting surface for optional switches (all emergency switches will utilize switching provided in the chassis dash), applicable indicator lights and electronic siren control boxes. The lower panel shall be used for mount of applicable radios, joysticks, pump controls, etc. all controls will be within reach of the driver or officer.



In addition, the console shall be equipped with two (2) map/notebook storage pockets at the rear of the console. The console dimensions are based on the available space in the cab.

A Blue Sea model #4363 multi-use power point with built in two (2) USB ports, and one (1) 12-volt socket shall be installed on the console.

A Blue Sea model #5032 split 12 space fuse block shall be installed in the center console. Side "A" shall be battery power and side "B" shall be battery disconnect. The fuse block shall be limited to 60 amps per load group and 30 amps per circuit with a total amperage capacity of 100 amps.

The console will have a brushed aluminum finish.

### **INTERNATIONAL HV607 4DR 4X2 16/30**

2025 INTERNATIONAL Model HV607 SBA with 232.00 Wheelbase, 121.00 CA, and 75.00 Axle to Frame.

AXLE CONFIGURATION {Navistar} 4x2

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.125" x 3.580" x 0.312" (257.2mm x 90.9mm x 8.0mm); 480.0" (12192) Maximum OAL

FRAME REINFORCEMENT Full Outer C-Channel, Heat Treated Alloy Steel (120,000 PSI Yield), 10.813" x 3.892" x 0.312" (274.6mm x 98.8mm x 7.9mm), 480.0" (12192mm) OAL

BUMPER, FRONT Contoured, Stainless Steel, Polished

FRAME DIMPLE Dimple on Left and Right Top Flange of Frame Rail to Reference Rear Axle Centerline

FRAME EXTENSION, FRONT Integral; 20" In Front of Grille, with Outer C-Channel Reinforcement

WHEELBASE RANGE 189" (480cm) Through and Including 256" (650cm)

AXLE, FRONT NON-DRIVING {Meritor MFS-16-143A} Wide Track, I-Beam Type, 16,000-lb Capacity

SUSPENSION, FRONT, SPRING Parabolic Taper Leaf, Shackle Type, 16,000-lb Capacity, with Shock Absorbers

BRAKE SYSTEM, AIR Dual System for Straight Truck Applications

Includes

: BRAKE LINES Color and Size Coded Nylon

: DRAIN VALVE Twist-Type

: GAUGE, AIR PRESSURE (2) Air 1 and Air 2 Gauges; Located in Instrument Cluster

: PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel

: PARKING BRAKE VALVE For Truck

: QUICK RELEASE VALVE On Rear Axle for Spring Brake Release: 1 for 4x2, 2 for 6x4

: SPRING BRAKE MODULATOR VALVE R-7 for 4x2, SR-7 with relay valve for 6x4/8x6

DRAIN VALVE {Bendix DV-2} Automatic, with Heater, for Air Tank

AIR BRAKE ABS {Bendix AntiLock Brake System} 4-Channel (4 Sensor/4 Modulator) Electronic Stability Program, with Automatic Traction Control

AIR DRYER {Bendix AD-IP} with Heater

BRAKE CHAMBERS, REAR AXLE {Bendix EverSure} 36/36 Sqli Spring Brake

BRAKE CHAMBERS, FRONT AXLE {Bendix} 24 Sqli

BRAKE, PARKING Manual Push-Pull Pneumatic Parking Brake

SLACK ADJUSTERS, FRONT {Haldex} Automatic

SLACK ADJUSTERS, REAR {Haldex} Automatic

AIR COMPRESSOR {Cummins} 18.7 CFM

AIR TANK LOCATION (2) Mounted Left Side BOC Under Battery Box

AIR DRYER LOCATION Mounted Inside Left Rail, Back of Cab

DUST SHIELDS, FRONT BRAKE for Air Cam Brakes

DUST SHIELDS, REAR BRAKE for Air Cam Brakes

BRAKES, REAR {Meritor 16.5X7 P} Air S-Cam Type, Cast Spider, Cast Shoe, Double Anchor Pin,

Includes Greaseable and Zinc Coated Anchor Pins, Size 16.5" X 7", 38,000-lb Capacity per Axle



BRAKES, FRONT {Meritor 16.5X6 Q-PLUS CAST} Air S-Cam Type, Cast Spider, Fabricated Shoe, Double Anchor Pin, Size 16.5" X 6", 23,000-lb Capacity  
STEERING COLUMN Tilting and Telescoping  
STEERING WHEEL 4-Spoke; 18" Dia., Black  
STEERING GEAR {Sheppard M110} Power  
DRIVELINE SYSTEM {Dana Spicer} SPL170, for 4x2/6x2  
AFTERTREATMENT COVER Steel, Black  
EXHAUST SYSTEM Horizontal Aftertreatment System, Frame Mounted Right Side Under Cab, for Single Short Horizontal Tail Pipe, Frame Mounted Right Side Back of Cab  
ENGINE COMPRESSION BRAKE {Jacobs} for Cummins ISL/L9 Engines; with Selector Switch and On/Off Switch  
SWITCH, FOR EXHAUST 3 Position, Momentary, Lighted Momentary, ON/CANCEL, Center Stable, INHIBIT REGEN, Mounted in IP Inhibits Diesel Particulate Filter Regeneration When Switch is Moved to ON While Engine is Running, Resets When Ignition is Turned OFF  
ELECTRICAL SYSTEM 12-Volt, Standard Equipment  
Includes  
: DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab  
: HAZARD SWITCH Push On/Push Off, Located on Instrument Panel to Right of Steering Wheel  
: HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever  
: PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light  
: STARTER SWITCH Electric, Key Operated  
: STOP, TURN, TAIL B/U LIGHTS Dual, Rear, Combination with Reflector  
: TURN SIGNAL SWITCH Self-Cancelling for Trucks, Manual Cancelling for Tractors, with Lane Change Feature  
: WINDSHIELD WIPER SWITCH 2-Speed with Wash and Intermittent Feature (5 Pre-Set Delays), Integral with Turn Signal Lever  
: WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted  
: WIRING, CHASSIS Color Coded and Continuously Numbered  
CIGAR LIGHTER Includes Ash Cup  
HORN, ELECTRIC (2) Disc Style  
FOG LIGHTS Prewire; Includes Auxiliary Switch and Wiring to Front Bumper, for Driving Lights or Fog Lights Mounted by Customer  
IGNITION SWITCH Keyless  
POWER SOURCE Cigar Type Receptacle without Plug and Cord  
ALTERNATOR {Leece-Neville BLP4006HN} Brushless, 12 Volt, 325 Amp Capacity, Pad Mount, with Remote Sense  
BODY BUILDER WIRING Rear of Frame; Includes Sealed Connectors for Tail/Amber Turn/Marker/Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn  
BATTERY SYSTEM {Fleetrite} Maintenance-Free, (3) 12-Volt 1980CCA Total, Top Threaded Stud  
TAIL LIGHT WIRING MODIFIED Includes: Wiring for Standard Lt & Rt Tail Lights; Separate 8.0' of Extra Cable Wiring for Lt Rt Body Mounted Tail Lights  
2-WAY RADIO Wiring Effects; Wiring with 20 Amp Fuse Protection, Includes Ignition Wire with 5 Amp Fuse, Wire Ends Heat Shrink and 10' Coil Taped to Base Harness  
SPEAKERS (2) 6.5" Dual Cone Mounted in Both Doors, (2) 5.25" Dual Cone Mounted in Both B-Pillars  
ANTENNA Shark Fin, Roof Mounted  
RADIO AM/FM/WB/Clock/Bluetooth/USB Input/Auxiliary Input  
BACK-UP ALARM Electric, 102 dBA  
DATA RECORDER Includes Display Mounted in Overhead Console  
STOP-LIGHT WIRING MODIFIED Stop-Lights Turned on When Engine Compression Brake, Exhaust Brake or Retarder is Activated  
BATTERY BOX Steel, with Plastic Cover, 30" Wide, 2-4 Battery Capacity, Mounted Left Side Back of Fuel Tank



SOLENOID, AIR for Customer Use; Provides (2) Normally Closed Pilot Air Source, Approx. 4 CFM, Includes Latched Switch in Cab; Air Available Only with Key in "Ignition" or "Accessory" Position; Air Will Exhaust with Key in "Off" Position

CLEARANCE/MARKER LIGHTS (5) {Truck Lite} Amber LED Lights, Flush Mounted on Cab or Sunshade

TEST EXTERIOR LIGHTS Pre-Trip Inspection will Cycle all Exterior Lamps Except Back-up Lights

STARTING MOTOR {Delco Remy 38MT Type 300} 12 Volt, Less Thermal Over-Crank Protection

INDICATOR, LOW COOLANT LEVEL with Audible Alarm

INDICATOR, BATTERY WARNING Green BATTERY ON Indicator, Mounted on Left Side of Instrument Panel, To be Used with Factory Installed or Customer Mounted Battery Disconnect Switch

CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III with Trip Indicators, Replaces All Fuses

TURN SIGNALS, FRONT Includes LED Side Turn Lights Mounted on Fender

HORN, AIR Single Trumpet, Black, with Lanyard Pull Cord

BATTERY DISCONNECT SWITCH for Cab Power Disconnect Switch, Disconnects Power to Power Distribution Center (PDC) and Body

Builder Through Solenoid, Does Not Disconnect Charging Circuits, Locks with Padlock, Cab Mounted

HEADLIGHTS Halogen, with Daytime Running Lights, Automatic Twilight Controlled

STEERING WHEEL CONTROLS Customizable Switch Pod

POWER SOURCE, ADDITIONAL Auxiliary Power Outlet (APO) with USB-A Port and USB-C Port, Located in the Instrument Panel

FENDER EXTENSIONS Rubber

LOGOS EXTERIOR Model Badges, Shipped Loose, Located in Cab

LOGOS EXTERIOR, ENGINE Badge Shipped Loose

INSULATION, UNDER HOOD for Sound Abatement

GRILLE Stationary, Chrome

INSULATION, SPLASH PANELS for Sound Abatement

FRONT END Tilting, Fiberglass, with Three Piece Construction, for WorkStar/HV

GRILLE EMBER SCREEN Mounted to Grille and Cowl Tray to Keep Hot Embers out of Engine and HVAC Air Intake System

PAINT IDENTITY, PT-2 Single Color, Instruction No. 932. Wheels

PAINT TYPE Base Coat/Clear Coat, 1-2 Tone

PAINT CLASS Single Custom Color

COMMUNICATIONS MODULE Telematics Device with Over the Air Programming; Includes Five Year Data Plan and International 360

PROMOTIONAL PACKAGE Government Silver Package

VEHICLE REGISTRATION IDENTITY ID for Other State

Notes

: CANNOT BE REGISTERED IN CALIFORNIA. For vehicles that will be registered in States other than California.

KEYS - ALL ALIKE, ID I-1003 Compatible with Z-001

CLUTCH Omit Item (Clutch Control)

ANTI-FREEZE Red, Extended Life Coolant; To -40 Degrees F/ -40 Degrees C, Freeze Protection

BLOCK HEATER, ENGINE 120V/1000W, for Cummins ISB/B6.7/ISL/L9 Engines

Includes

: BLOCK HEATER SOCKET Receptacle Type; Mounted below Drivers Door

ENGINE, DIESEL {Cummins L9 450} EPA 2024, 450HP @ 2100 RPM, 1250 lb-ft Torque @ 1200 RPM, 2100 RPM Governed Speed, 450 Peak HP (Max), (RATED FOR EMERGENCY VEHICLES ONLY)

FAN DRIVE {Horton Drivemaster} Two-Speed Type, Direct Drive, with Residual Torque Device for Disengaged Fan Speed

Includes

: FAN Nylon

RADIATOR Aluminum, Cross Flow, Front to Back System, 1469 SqtIn, with 1172 SqtIn Charge Air Cooler

Includes

: DEAERATION SYSTEM with Surge Tank

: HOSE CLAMPS, RADIATOR HOSES Gates Shrink Band Type; Thermoplastic Coolant Hose Clamps





: RADIATOR HOSES Premium, Rubber  
AIR CLEANER Dual Element  
EMISSION, CALENDAR YEAR {Cummins L9} EPA, OBD and GHG Certified for Calendar Year 2024  
THROTTLE, HAND CONTROL Engine Speed Control; Electronic, Stationary, Variable Speed; Mounted on Steering Wheel  
EPA IDLE COMPLIANCE Low NOx Idle Engine, Complies with EPA Clean Air Regulations; Includes "Certified Clean Idle" Decal on Hood  
ENGINE WATER COOLER {Sen-Dure} Auxiliary, For Use with Fire Trucks  
CARB IDLE COMPLIANCE Does Not Comply with California Clean Air Idle Regulations  
CARB EMISSION WARR COMPLIANCE for Cummins L9 Engines  
ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls and Starter Lockout, with Ignition Switch Control, for Cummins B6.7 and L9 Engines  
TRANSMISSION, AUTOMATIC {Allison 3000 EVS} 6th Generation Controls, Close Ratio, 5-Speed with Overdrive, with PTO Provision, Less Retarder, Includes Oil Level Sensor, Max, GVW N/A  
OIL COOLER, TRANSMISSION {Modine} Water to Oil Type  
TRANSMISSION SHIFT CONTROL Column Mounted Stalk Shifter, Not for Use with Allison 1000 2000 Series Transmission  
TRANSMISSION OIL Synthetic; 29 thru 42 Pints  
ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS), Fire/Pumper, Tank, Aerial/Ladder, Package Number 198, Includes J1939 Based Auto Neutral  
SHIFT CONTROL PARAMETERS {Allison} 3000 or 4000 Series Transmissions, Performance Programming  
PTO LOCATION Dual, Customer Intends to Install PTO at Left and/or Right Side of Transmission  
AXLE, REAR, SINGLE {Meritor RS-30-185} Single Reduction, 30,000-lb Capacity, T Wheel Ends . Gear Ratio: 5.13  
SUSPENSION, REAR, SINGLE 31,000-lb Capacity, Vari-Rate Springs, with 4500-lb Capacity Auxiliary Rubber Springs  
SHOCK ABSORBERS, REAR (2)  
FUEL/WATER SEPARATOR {Racor 400 Series} with Primer Pump, Includes Water-in-Fuel Sensor, Mounted on Engine  
FUEL TANK Top Draw, Non-Polished Aluminum, D-Style, 19" Tank Depth, 50 US Gal (189L), Mounted Left Side, Under Cab  
FUEL COOLER Less Thermostat; Mounted in Front of Cooling Module  
DEF TANK 7 US Gal (26L) Capacity, Frame Mounted Outside Left Rail, Under Cab  
CAB Conventional 6-Man Crew Cab  
AIR CONDITIONER with Integral Heater and Defroster  
GAUGE CLUSTER Base Level; English with English Electronic Speedometer  
Includes  
: GAUGE CLUSTER DISPLAY: Base Level (3" Monochromatic Display), Premium Level (5" LCD Color Display); Odometer, Voltmeter, Diagnostic Messages, Gear Indicator, Trip Odometer, Total Engine Hours, Trip Hours, MPG, Distance to Empty/Refill for  
: GAUGE CLUSTER Speedometer, Tachometer, Engine Coolant Temp, Fuel Gauge, DEF Gauge, Oil Pressure Gauge, Primary and Secondary Air Pressure  
: WARNING SYSTEM Low Fuel, Low DEF, Low Oil Pressure, High Engine Coolant Temp, Low Battery Voltage (Visual and Audible), Low Air Pressure (Primary and Secondary)  
GRAB HANDLE, CAB INTERIOR (4) Safety Yellow, Crew Cab  
SEATBELT WARNING PREWIRE Includes Seat Belt Switches and Seat Sensors for all Belted Positions in the Cab and a Harness Routed to the Center of the Dash for the Aftermarket Installation of the Data Recorder and Seatbelt Indicator Systems, for 4 to 6 Seat Belts  
GAUGE, OIL TEMP, AUTO TRANS for Allison Transmission  
GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} Mounted in Instrument Panel  
IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster  
SEAT, DRIVER {H.O. Bostrom Sierra Air 100} NFPA Compliant, Air Suspension, High Back, Vinyl with Covered Back and International Logo on Headrest, for Fire Truck



SEAT, PASSENGER {H.O. Bostrom Tanker 450} for SCBA; Non-Suspension, High Back, Vinyl with Covered Back, International Logo on Headrest, Adjusters, 7-Degree Back Angle  
SEAT, REAR {H.O. Bostrom Tanker 400CT} for SCBA; Two Individual Seats on One Riser, Non Suspension, High Back, Vinyl, with Covered Back and International Logo on Headrest  
GRAB HANDLE, EXTERIOR (2) Chrome, Towel Bar Type, with Anti-Slip Rubber Inserts, for Cab Entry Mounted Left and Right Side at B-Pillar  
MIRRORS (2) C-Loop, Power Adjust, Heated, LED Clearance Lights, Bright Heads and Arms, 7.5" x 14" Flat Glass, Includes 7.5" x 7" Convex Mirrors, for 102" Load Width  
SEAT BELT All Red; 4 to 6  
CAB MOUNTING HEIGHT EFFECTS High Cab in Lieu of Mid High Cab Mounting (Approx. 4.5")  
CAB INTERIOR TRIM Diamond, for Crew Cab  
Includes  
: CONSOLE, OVERHEAD Molded Plastic with Dual Storage Pockets, Retainer Nets and CB Radio Pocket; Located Above Driver and Passenger  
: DOME LIGHT, CAB Door Activated and Push On-Off at Light Lens, Timed Theater Dimming, Reading Lights; Integral to Overhead Console, Center Mounted  
: SUN VISOR (3) Padded Vinyl; 2 Moveable (Front-to-Side) Primary Visors, Driver Side with Vanity Mirror and Toll Ticket Strap, plus 1 Auxiliary Visor (Front Only), Driver Side  
MONITOR, TIRE PRESSURE Omit  
WINDOW, POWER (4) And Power Door Locks, Front and Rear Doors, Left and Right, Includes Express Down Feature  
CAB REAR SUSPENSION Air Bag Type  
INSTRUMENT PANEL Flat Panel  
ACCESS, CAB Steel, Driver Passenger Sides, Two Steps per Door, for use with Crew Cab  
WHEELS, FRONT {Accuride 29300} DISC; 22.5x9.00 Rims, Powder Coat Steel, 5-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs  
WHEELS, REAR {Accuride 29300} DUAL DISC: 22.5x9.00 Rims, Powder Coat Steel, 5-Hand Hole, 10-Stud, 285.75mm BC, Hub-Piloted, Flanged Nut, with Steel Hubs  
PAINT, CAB Two-Tone, with 1-2 Breaks on Cab.  
PAINT HOOD, CONVENTIONAL CAB Two-Tone, with 1-2 Breaks on Hood.  
BDY INTG, REMOTE POWER MODULE (2) Mounted Under Cab or On Battery Box, Up to 6 Outputs & 6 Inputs Each, Max 20 amp per Channel, Max 80 amp Total; Includes 1 Module with Switch Pack Containing 6 Latched Switches, 1 Module with Hardware Only  
BDY INTG, I/O EXP HARNESS {for Diamond Logic Builder} In-Cab wire harness (DLB) program only, Includes a harness with five blunt cut wires routed on lower left of instrument panel. Two ground active inputs and two (.5Amp) relay drivers outputs are provided  
(2) TIRE, FRONT 315/80R22.5 Load Range L XDN2 (MICHELIN), 486 rev/mile, 75 MPH, Drive  
(4) TIRE, REAR 315/80R22.5 Load Range L XDN2 (MICHELIN), 486 rev/mile, 75 MPH, Drive  
Cab schematic 21LWL  
Location 1: 9408, Off White (Custom)  
Location 2: 2973, 3225 Red (Custom)  
Chassis schematic 932WL  
Wheel: 2973, 3225 Red (Custom)  
WARRANTY Standard for HV507, HV50B, HV607 Models, Effective with Vehicles Built July 1, 2017 or Later, CTS-2025A  
CARB COMPANION PLAN {Navistar} for CARB B6.7 and L9 Engines  
SPECIAL PROGRAMMING  
(2) HADLEY HOOD MOUNTED AIR HORNS WITH STEERING WHEEL ACTIVATION AND PASS.  
FOOT SWITCH W/LANYARD  
EXHAUST EXTENSION TO EXIT IN FRONT OF THE RIGHT REAR WHEEL





### **VEHICLE TOP SPEED - INTERNATIONAL - 2016 NFPA STANDARD**

The rear axle/s shall be geared for a vehicle top speed in accordance with NFPA sections 4.15.2 and 4.15.3.

Units with GVWR over 26,000 pounds shall be limited to 68 mph. If the combined tank capacity is over 1250 gallons of foam and water or the GVWR is over 50,000 pounds, the vehicle top speed shall be limited to 60 mph or the fire service rating of the tires, whichever is lower.

### **INTERNATIONAL SAE J2433 ROLLOVER TESTING**

The International chassis shall comply with SAE J2422 Cab Roof Strength Evaluation. The Cab to Chassis Mounting System shall remain attached to the vehicle chassis and in an orientation similar to its original position when subjected to 20g deceleration load in the forward direction. Components in the mounting system may become distorted or broken but never dislodge from the original mounting location.

### **INT - TWENTY (20) INCH FRONT BUMPER EXTENSION**

A 12" high, 96" wide, two (2) ribbed, bright finish stainless steel front bumper shall be provided. A twenty (20) inch front bumper extension, with tread plate gravel shield shall be provided.

### **INT - ONE (1) AUX. AIR INLET SYSTEM NEAR LEFT DOOR**

A quick disconnect male auxiliary air inlet shall be provided at the driver's side door area at a location to be determined at a pre-construction conference.

A mating quick disconnect female connector shall be shipped loose with the apparatus.

This shall allow a Purchaser furnished external air supply to be connected to the chassis air system.

### **FRONT MUD FLAPS**

Black rubber mud flaps shall be provided on the front fenders.

### **COVER, DRIVER SIDE CAB STEP AREA - 4 DOOR**

The driver side cab step area shall be covered with a polished aluminum tread plate cover which shall include the top, front and both ends. Access covers/ports shall be provided to access any chassis components when applicable. Step areas shall be provided for access to the cab.

The treadplate step overlay shall be easily removable for inspection of the batteries.

### **COVER, OFFICER SIDE CAB STEP AREA - 4 DOOR**

The officer side cab step area shall be covered with a polished aluminum tread plate cover which shall include the top, front and both ends. Access covers/ports shall be provided to access any chassis components when applicable. Step areas shall be provided for access to the cab.

The treadplate step overlay shall be easily removable for inspection of the batteries.



### **INT ACC - SEATS INC. DRIVER & OFFICER SEAT**

A Seats Inc, NFPA compliant, air ride driver seat and air ride type SCBA, officer bucket seat shall be installed in place of the International air ride drivers seat and officer two (2) men bench seat.

Note: Seats do not include SCBA brackets as standard.

### **STANDARD #MATM ANTENNA**

A antenna mounting base model #MATM with 17' of coaxial cable shall be provided and installed on the cab roof.

The attached antenna wire shall run to the center console.

The Fire Department is responsible to have the correct antenna whip and termination installed once the apparatus is delivered.

### **INT - CAB STEP LIGHTS- FOUR DOOR**

Tecniq E-03 step lights shall be provided. There should be one (1) placed next to each cab door to illuminate the cab stepping surfaces. The step lights shall be mounted in a convenient location to provide appropriate illumination to the cab stepping surfaces. The step lights shall automatically activate when the parking brake is applied and marker lights are activated.

### **INT - AUXILIARY AIR MANIFOLD - COMMERCIAL CHASSIS**

All auxiliary air devices on the commercial chassis shall be fed from a common manifold. The common manifold shall be installed at an accessible location near the chassis air tanks. The manifold shall be fed by a 3/8" synflex airline plumbed from the primary air tank using a pressure protection valve. Unused ports shall be closed off using an appropriately sized plug.

### **INTL - UNDER CAB STORAGE COMPARTMENT**

A compartment shall be provided under the extended portion of the cab on the officer's side. The compartment will be fabricated from unpainted aluminum and will be provided with an aluminum tread plate door with a D ring handle and latch. The compartment will be sized per the available space in this location.

### **COMMERCIAL CHASSIS ELECTRICAL SYSTEM DESCRIPTION**

The commercial chassis electrical system shall be provided as furnished by the original manufacturer. A customized interface shall be provided and designed, so as not to disturb any of the required chassis functions. The necessary interfaces shall only be provided in areas where load management is allowed or with accessory components provided on the chassis.

### **\*\*\*\* AKRON/WELDON VDR/SEAT BELT SYS. INCLUDED IN INTERNATIONAL SPEC**

### **VEHICLE DATA RECORDER**

A Weldon model #0L40-2597-00, VDR download harness shall be supplied with the system to allow the data to be downloaded to a computer.



### **CENTER WELL**

One (1) storage well constructed of 1/8" aluminum shall be installed in the gravel shield. This storage well shall be center mounted between the chassis frame rails. The bottom of the storage well shall have a minimum of four (4) drain holes.

### **TWO (2) VELCRO STRAPS ON CENTER WELL**

The center, front bumper hose well shall be furnished with Velcro straps to secure the hose stored in the well.

The straps shall be attached to each side of the hose well with footman loops.

### **CENTER WELL - HOSE CAPACITY**

The center storage well shall have the desired capacity of:

### **CENTER WELL - 150 FEET OF 1-3/4" HOSE**

150' of 1 3/4" hose

### **TOW HOOKS**

Two (2) front painted, tow hooks shall be fastened directly to the bumper support structure below the front bumper.

The tow hooks shall be fastened with grade 8 bolts and nuts.

### **LICENSE PLATE BRACKET**

A chrome plated, license plate bracket shall be provided on the front bumper of the apparatus.

### **TIRE PRESSURE MONITORING**

Each tire shall be equipped with an LED tire alert pressure management system (Vecsafe equal) that shall monitor tire pressure. A chrome plated brass sensor shall be provided on the valve stem of each tire.

The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 20 and 120 psi.

The sensor shall activate an integral battery operated LED when the pressure of that tire drops 8 psi.

### **TRANSMISSION LOCK-UP**

The automatic transmission furnished in the chassis shall have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while in the pumping mode.

A positive braking system shall be provided to prevent vehicle movement during pumping operations.

The air brakes furnished must satisfy this requirement.



## **12 VOLT ELECTRICAL SYSTEM TESTING**

The apparatus low voltage electrical system shall be tested and certified by the manufacturer. The certification shall be provided with the apparatus. All tests shall be performed with the air temperature between 0°F and 100°F.

The following three (3) tests shall be performed in order. Before each test, the batteries shall be fully charged.

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 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 failure.

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.

The total continuous electrical load shall be activated with the engine running up to the engine manufacturers governed speed. The test duration shall be a minimum of 2 hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded due to excessive battery discharge, as detected by the system, or a system voltage of fewer than 11.7 volts DC for a 12-volt system, for more than 120 seconds, shall be considered a test failure.

Following completion of the preceding 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 is activated.

The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of fewer than 11.7 volts shall be considered a test failure. The battery system shall then be able to restart the engine.

At the time of delivery, documentation shall be provided with the following information:

- Documentation of the electrical system performance test
- A written load analysis of the following;
- Nameplate rating of the alternator
- Alternator rating at idle while meeting the minimum continuous electrical load
- Each component load comprising the minimum continuous electrical load.
- Additional loads that, when added to the minimum continuous load, determine the total connected load.
- Each individual intermittent load.

## **DIRECT BATTERY GROUNDING STRAP**

If the electrical system requires, direct grounding straps shall be mounted to the following areas; frame to cab, frame to body and frame to pump enclosure.

All exposed electrical connections shall be coated with "Z-Guard 8000" to prevent corrosion.



### **BATTERY DISCONNECT SWITCH**

The chassis batteries shall be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch.

The master disconnect switch shall be located within easy access of the driver upon entering or exiting the cab.

### **SHORELINE INLET**

One (1) Kussmaul "Super" Auto Eject automatic, 120 volt, 20 amp shoreline disconnect shall be provided for the on board, 110 volt battery charging systems.

The disconnect shall be equipped with a NEMA 5-20 P male receptacle, which shall automatically eject the shoreline when the vehicle starter is energized.

The mating connector shall be included with the auto eject and shall be provided as loose equipment.

A label shall be provided indicating voltage and amperage ratings.

### **SHORELINE INLET COVER**

The Kussmaul auto-eject connection shall be equipped with a Gray weatherproof cover.

### **SHORELINE INLET LOCATION**

The shoreline receptacle shall be located in the driver's cab step well in a pre-determined location by KME.

### **SHORELINE INLET LABEL**

A shoreline power receptacle information plate shall be permanently affixed at or near the power inlet. The plate shall indicate the following:

- Type of Line Voltage
- Current Rating in Amps Power Inlet Type (DC or AC).

### **BATTERY CHARGER/INVERTER**

The chassis shall be equipped with a Kussmaul Auto Power 091-269-12-3000, fully automatic battery inverter/charger.

The unit shall contain a 100 amp, fully automatic battery charger to re-charge and maintain the chassis batteries when the shoreline connection has been made.

The unit shall also contain a built in inverter capable of providing 3,000 watts of continuous AC power and a 6,000 watt surge capacity.

The unit shall have a built in transfer switch capable of diverting AC power to AC loads during shoreline connection.

The unit will be mounted in the upper area of the R1 body compartment.



### **120 VOLT POWER STRIP REAR CREW AREA WIRED TO SHORE POWER**

#### **SHORELINE POWER STRIP**

A 120-volt household type power strip shall be located as directed in the rear crew area of the cab. The power strip shall be equipped with a minimum of six (6) outlets. The power strip shall be wired into the shoreline receptacle to provide a 120-volt power source for fire department equipment.

### **FRONT DOOR JAMB SWITCHES TO ACTIVATE ALL DOME LIGHT**

Each side front door jamb switch shall activate all of the cab dome lights.

### **HAND HELD SPOTLIGHT**

A Whelen P36HHS hand-held spotlight shall be provided, it shall have a coil-cord, cigar lighter plug, an on/off switch and a 500 lumens LED lamp. A 12 volt power point shall be furnished to supply power.

### **IGNITION STUD - REAR CREW AREA**

An ignition stud shall be installed in the rear crew area for items needing an ignition circuit ( ie. mobile radio).

This stud has a maximum amperage of 20 Amps.

### **ONE (1) 13 INCH OUTLET STRIP NEXT TO BREAKER PANEL**

One (1) 13 inch outlet strip shall be installed at a location TBD by the customer.

Each outlet strip shall have four (4) single household receptacles.

The outlet strip shall require a 120 volt circuit breaker to be installed in the load center to properly protect the circuit.

### **ENGINE COMPARTMENT WORK LIGHTS - TECNIQ LED**

Two (2) Tecniq model #E18 LED lights shall be provided inside the engine enclosure that will provide 800 lumens each.

Each light shall have their own independent switch incorporated into the light head.

### **HOSE BED WORK LIGHT - SWITCH**

The hose bed work light shall have a protected 12-volt switch at the rear body panel.

The switch will be labeled "HOSE BED WORK LIGHTS."

### **CONTROL SWITCH IN CAB FOR LIGHT(S) ABOVE WINDSHIELD**

Controls shall be provided in the cab control system (or optional mechanical switch) to turn the light(s) above windshield on and off.



### **CONTROL SWITCH IN CAB FOR REAR OF BODY LIGHTS**

Controls shall be provided in the cab control system (or optional mechanical switch) to turn the rear of body lights on and off.

### **CONTROL SWITCH ON PUMP PANEL FOR REAR OF BODY LIGHTS**

A switch shall be provided on the pump panel to turn the rear of body lights on and off.

### **CONTROL SWITCH IN CAB FOR DRIVER SIDE OF BODY LIGHTS**

Controls shall be provided in the cab control system (or optional mechanical switch) to turn the driver side of body lights on and off.

### **CONTROL SWITCH ON PUMP PANEL FOR DRIVER SIDE OF BODY LIGHTS**

A switch shall be provided on the pump panel to turn the driver side of body lights on and off.

### **CONTROL SWITCH IN CAB FOR OFFICER SIDE OF BODY LIGHTS**

Controls shall be provided in the cab control system (or optional mechanical switch) to turn the officer side of body lights on and off.

### **CONTROL SWITCH ON PUMP PANEL FOR OFFICER SIDE OF BODY LIGHTS**

A switch shall be provided on the pump panel to turn the officer side of body lights on and off.

### **CAMERA SYSTEM**

An ASA Voyager rear vision camera system model # OBS713PKG shall be provided to allow the driver to visually see the rear of the apparatus while in the cab.

The system shall include an ASA model # VOM719WP flat panel LCD color monitor mounted adjacent to the driver and a ASA model # VCMS155 color camera that shall be mounted at the rear of the vehicle. The rear vision camera shall be wired to automatically activate when the chassis transmission is placed in reverse.

### **CAMERA SYSTEM**

One (1) formed aluminum diamond plate shield shall be provided and mounted over the rear view camera to protect it from being damaged.

### **CAMERA SYSTEM**

The monitor for the rear vision system shall be mounted ceiling of the cab in easy view of the driver.  
Note: This will be a separate screen, this will not be part of the ES-Key screen.

### **COMMERCIAL CHASSIS MARKER LIGHTS AND REFLECTORS**

Cab marker lights and signaling devices shall be as provided on the commercial chassis cab from the original chassis manufacturer. FMVSS reflectors shall be also be provided as required.





### **CAB STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES**

Polished, stainless steel, TecNiq Eon, 3-LED, horizontal surface mounted chassis step lights shall be provided and controlled with marker light actuation and park brake application.

Step lights shall be located to properly illuminate all chassis access steps and walkway areas and shall include a mounting gasket to provide a watertight seal.

### **FRONT BROW LIGHT**

One (1) Whelen Pioneer, # PFH2, super LED roof mount light shall be provided and installed.

The mounting bracket shall attach to the lamp head and be machined to conform to the roof radius.

The lamp head shall have one (1) dual stacked, white, LED module and shall draw 12 amps and generate 20,261 lumens.

The lamp head shall incorporate an adjustable downward angle to maximize the light effectiveness.

The lamp head and brackets shall be powder coated white.

The Whelen brow mounted flood lights shall be located above the windshield in the center of the cab.

### **WIRE UPGRADE FOR 12V HIGH AMP LIGHT - (1) BROW LIGHT**

### **NFPA COMPLIANT WARNING LIGHT PACKAGE**

The following warning light package shall include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1900 Fire Apparatus Standard.

The lighting as specified shall meet the requirements for both "Clearing Right of Way" and "Blocking Right of Way" which includes disabling all white warning lights when the apparatus is in "Blocking Right of Way" mode.

### **WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN**

All of the perimeter warning lights shall be set to a default NFPA compliant flash pattern as provided by the light manufacturer.

### **LIGHT PACKAGE ACTUATION/CONTROLS**

The entire warning light package shall be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package shall engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system shall be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

### **LIGHT PACKAGE NFPA CERTIFICATION**

The warning light system(s) specified above shall not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way"



The warning light system(s) shall be certified by the light system manufacturer(s), to meet all of the requirements in the current revision of the NFPA 1900 Fire Apparatus Standard as noted in the General Requirements section of these specifications.

The NFPA required "Certificate of Compliance" shall be provided with the completed apparatus.

Any large truck as defined by NFPA shall have the lower zone warning lights mounted no higher than 62" to the optical center of the warning light from ground level. {No Exceptions}

### **LIGHT BAR**

A Whelen Dominator eight (8) head, all Red LED's with clear lenses shall be provided and will be mounted below the Freightliner Chassis provided Visor. The light will be mounted using DBKT4 mounting brackets.

If equipped, the forward facing white lights shall be automatically disabled for the "Blocking Right of Way" mode.

### **C-UPPER, WHELEN 900 SUPER LEDS**

Two (2) Whelen, 900, super LED light heads shall be furnished and mounted one (1) on each side on the upper rear face of the body, facing rear.

### **UPPER ZONE C WARNING LIGHT LENS - RED**

The upper zone C warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

### **UPPER ZONE C WARNING LIGHT BEZEL - CHROME**

The upper zone C warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

### **B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER**

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

### **B/D-UPPER REAR, WHELEN 600 SUPER LEDS**

Two (2) Whelen, 600 super LED light heads shall be furnished and mounted one (1) on each side on the upper side face, towards the rear of the body, facing to each side of the unit.

The lights shall be installed with a chrome plated mounting flange.

### **UPPER ZONE B/D REAR WARNING LIGHT LENS - RED**

The upper zone B/D rear warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

### **UPPER ZONE B/D REAR WARNING LIGHT BEZEL - CHROME**

The upper zone B/D rear warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.



### **A-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS**

The lower zone A warning lights shall be mounted in the commercial chassis grille no higher than 62" from ground level.

### **A-LOWER FRONT, WHELEN 600 SUPER LEDS**

Two (2) Whelen 600 super LED light heads shall be provided and installed one (1) each side.

### **LOWER ZONE A WARNING LIGHT LENS - RED**

The lower zone A warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

### **LOWER ZONE A WARNING LIGHT BEZEL - CHROME**

The lower zone A warning lights shall include red leds and a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

### **C-LOWER REAR, WHELEN 600 SUPER LEDS**

Two (2) Whelen, 600, super LED light heads shall be provided and installed one (1) each side directly below the DOT stop, tail, turn and backup lights.

### **LOWER ZONE C WARNING LIGHT LENS - RED**

The lower zone C warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

### **B/D-LOWER FRONT MOUNTING, COMMERCIAL CHASSIS**

The lower zone B D warning lights shall be mounted on the sides of the commercial chassis hood at or forward of the centerline of the front axle. The light shall be mounted no higher than 62" from ground level.

### **B/D-LOWER FRONT, WHELEN 600 SUPER LEDS**

Two (2) Whelen, 600 super LED light heads shall be provided and installed with one (1) on each side.

### **LOWER ZONE B/D FRONT WARNING LIGHT LENS - RED**

The lower zone B/D front warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

### **LOWER ZONE B/D FRONT WARNING LIGHT BEZEL - CHROME**

The lower zone B/D front warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

### **B/D-LOWER REAR, WHELEN 600 SUPER LEDS**

Two (2) Whelen 600 super LED light heads shall be provided and installed with one (1) on each side.



#### **LOWER ZONE B/D REAR WARNING LIGHT LENS - RED**

The lower zone B/D rear warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

#### **LOWER ZONE B/D REAR WARNING LIGHT BEZEL - CHROME**

The lower zone B/D rear warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

#### **WHELEN ION SURFACE MOUNT ON FRONT RUB RAIL**

Two (2) Whelen Ion Series LED lights shall be furnished and shall be mounted on the front of body rub rail.

The lights specified above shall be provided in addition to the NFPA required Optical Warning Light Package and shall be activated by the master emergency warning light control. Wiring for these lights shall be run through the Load Management System to ensure that the electrical system is not overloaded by the additional amperage draw requirements.

#### **UPPER AUX. WARNING LIGHT LENS - RED**

The upper auxiliary warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

#### **LOWER AUX. WARNING LIGHT LENS - RED**

The lower auxiliary warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

#### **UPPER AUX. WARNING LIGHT BEZEL - CHROME**

The upper auxiliary warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

#### **LOWER AUX. WARNING LIGHT LENS - CHROME**

The lower auxiliary warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

#### **GROUND LIGHTS**

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each side cab door entrance step, four (4) total.

The ground lights shall turn on automatically with each respective door jamb switch and also by a master ground light switch in the warning light switch console.

Each light shall illuminate an area at a minimum 30" outward from the edge of the vehicle.

#### **GROUND LIGHTS BELOW PUMP PANEL RUNNING BOARD**

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each side pump panel running board, two (2) total.



### **GROUND LIGHTS REAR BODY CORNERS**

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each rear body corner, two (2) total.

### **CAB AND BODY GROUND LIGHTS ACTIVATION**

The cab and body ground lights shall activate by engaging the parking brake.

### **DIAMOND LOGIC MULTI-PLEX SYSTEM, INTERNATIONAL CHASSIS**

The electrical system for the entire apparatus shall feature the International® Diamond Logic® Electrical System. This industry leading solution is built on a multiplexed architecture containing technologies in components such as solid state power switches, self-calibrating gauges and low current switch devices used for driver controls, like rocker switches and HVAC controls. The low current system and solid state switching results in maximum reliability and durability.

At the heart of International® Diamond Logic™ electrical system is the Electronic System Controller (ESC) which functions as the gatekeeper or central processor. The ESC continually monitors the vehicles electrical system and controls, including the engine, transmission, cab and customer installed truck equipment, so that they all communicate and work together.

In addition the Diamond Logic® Electrical system consists of International factory installed, Remote Power Modules (RPMs) and factory installed switches and warning lights. This combination of factory installed equipment eliminates the need to cut into the chassis wiring and central wiring to one point outside the cab.

The Diamond Logic® Electrical System allows fully customizable logic to carry out functions which up until now required hard-wired circuits and component. The use of the system shall enable the manufacturer to reduce; if not eliminate; conventional circuit interlock and power supply components for all body builder installed functions as specified by the customer. The programmable system allows for automation of tasks, custom features and safety interlocks to meet complex application requirements resulting in increasing functionality and reducing wiring the wiring used in equipment by up to 70%.

Each vehicle shall be programmed by engineering and not only stored in engineering database, but also uploaded to International which shall enable any International Dealer location to maintain, troubleshoot or repair the entire system installed on the apparatus and NOT only the chassis.

This multiplex system controls both chassis and body functions including but not limited to emergency lighting, scene lighting, compartment lighting, and door ajar circuitry. Systems that utilize a multiplexed chassis with a hard wired body, or two different multiplex systems, shall not be considered. {No Exceptions}

### **CHASSIS DIAGNOSTICS SYSTEM**

Diagnostic ports shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow engine and ABS systems to provide blink codes should a problem exist.

The diagnostic system shall include the following:



- A single port to monitor the engine, transmission and ABS system and diagnostics of the roll sensor (if applicable)
- Engine diagnostic switch (blink codes)
- ABS diagnostic switch (blink codes)
- Allison Transmission Codes (through touch pad shifter)

### **BODY ELECTRICAL SYSTEM**

All electrical lines in the body shall be protected by automatic circuit breakers, conveniently located to permit ease of service.

Flashers, heavy solenoids and other major electrical controls shall be located in a central area near the circuit breakers.

All lines shall be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram.

A complete wiring diagram shall be supplied with the apparatus.

Wiring shall be carefully protected from weather elements and snagging. Heavy duty loom shall be used for the entire length.

Grommets shall be utilized where wiring passes through panels.

In order to minimize the risk of heat damage, wires run in the engine compartment area shall be carefully installed and suitably protected by the installation of heat resistant shielded loom.

All electrical equipment shall be installed to conform to the latest federal standards as outlined in NFPA 1900.

### **DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM**

An indicator light with an audible alarm, shall be functionally located in the cab to signal when an unsafe condition is present such as an open cab door or body compartment door, an extended ladder rack, a deployed stabilizer, an extended light tower or any other device which is opened, extended or deployed which may cause damage to the apparatus if it is moved.

This light shall be activated through the parking brake switch to signal when the parking brake is released.

### **DUNNAGE AREA LIGHTING**

Two (2) stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights shall be provided in the dunnage area to provide adequate illumination of this area.

These lights shall be switched in the same manner as the step lights.

### **COMPARTMENT LIGHT ACTIVATION**

Compartment lighting shall be switched either from an integral switch as provided by the roll up door manufacturer or a magnetic proximity switch if it is a KME manufactured door.





### **COMPARTMENT LIGHTS**

Each individual, equipment storage compartment shall be equipped with the AMDOR, Luma Bar, LED light fixture, mounted on each side of the forward (and rear) vertical door frame.

### **ROOF COMPARTMENT LIGHTS**

A Polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted compartment lights shall be provided and installed to ensure proper compartment illumination.

The lights shall be mounted to the roof compartment doors with gaskets and shall be activated with a magnetic door switch that shall be connected to the door ajar warning circuit.

### **MARKER/TURN LIGHTS @ EA SIDE OF BODY**

Red, LED marker lights with integral reflectors shall be provided at the lower side rear, having one (1) on each side.

Yellow, LED side marker and turn lights shall be provided on the apparatus lower side, forward of rear axle that puts one (1) on each side, if the apparatus is 30' long or longer.

### **DOT MARKER LIGHTS @ REAR OF BODY**

Red, LED clearance lights shall be provided on the apparatus rear upper having one (1) on each side at the outermost practical location.

Red, LED, 3-lamp identification bar will be provided on the apparatus rear center.

### **DOT AMBER REFLECTORS @ SIDE OF BODY**

Yellow reflectors shall be provided on the apparatus body lower side, as far forward and low as practical with one (1) on each side if the apparatus is 30' long or longer.

### **DOT RED REFLECTORS @ REAR OF BODY**

Red reflectors shall be provided on the apparatus rear with one (1) on each side at the outermost practical location.

### **TECNIQ #L10 LED LICENSE PLATE LIGHT**

One (1) Tecniq model #L10 LED license plate light shall be provided above the mounting position of the license plate. The license plate shall be located on the driver's side rear of body.

The light shall be clear in color and shall have a chrome finish.

### **WHELEN 600 LED BRAKE, REVERSE, TURN W/ QUAD HOUSING**

Two (2) Whelen 600 series, 4-1/8" x 6-1/2", LED red combination tail and stop lights, shall be mounted one each side at the rear of the body.

Two (2) Whelen 600 series, 4-1/8" x 6-1/2", LED amber arrow turn signal lights, shall be mounted one each side, on a vertical plane with the tail/stop lights.





Two (2) Whelen 600 series, 4-1/8" x 6-1/2", LED white back-up lights, shall be mounted one each side on a vertical plane with the turn/tail/stop signals.

These lights shall activate when the transmission is placed in reverse gear.

Two (2) Whelen PLAST4V mounting flanges, installed one (1) on each side, shall be provided to mount the lights described above in one common mounting flange.

The fourth opening shall be for the lower rear warning lights.

The lights shall be mounted in order, from top to bottom, as described above.

#### **BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES**

Polished, stainless steel, TecNiq Eon 3-LED, horizontal surface, mounted body step lights shall be provided and controlled with marker light actuation and park brake application.

Step lights shall be located to properly illuminate all body access steps and walkway areas and shall include a mounting gasket to provide a watertight seal.

#### **PUMP ENCLOSURE WORK LIGHTS - TECNIQ LED**

Two (2) Tecniq, model #E18 lights shall be provided inside the pump enclosure, providing 800 lumens each.

Each light shall have their own independent switch incorporated into the light head.

#### **WHELEN #PELCC HOSE BED LIGHTS-FRONT WALL**

Two (2) Whelen model PELCC, chrome plated, surface mounted lights shall be mounted in the hose bed on the front wall to illuminate the hose bed area.

#### **WHELEN M9 SERIES LED SCENE LIGHTS ON REAR OF BODY**

Two (2) Whelen, M9LZC, super LED scene lights shall be provided, (1) one on each side of the rear body panel in a chrome plated flange.

Each light shall draw 6 amps and generate 6,500 lumens.

The scene lights shall be wired through the load management system.

#### **WHELEN M9 SERIES LED SCENE LIGHTS ON DRIVER SIDE OF BODY**

Two (2) Whelen, M9LZC, super LED scene lights shall be provided.

The scene lights shall be installed one rearward and one forward on the driver side of the body in a chrome plated flange.

Each light shall draw 6 amps and generate 6,500 lumens.

The scene lights shall be wired through the load management system.



### **WHELEN M9 SERIES LED SCENE LIGHTS ON OFFICER SIDE**

Two (2) Whelen, M9LZC, super LED scene lights shall be provided.

The scene lights shall be installed one rearward and one forward on the officer side of the body in a chrome plated flange.

Each light shall draw 6 amps and generate 6,500 lumens.

The scene lights shall be wired through the load management system.

### **REAR SCENE LIGHTS TO BE ACTIVATED BY REVERSE LIGHT**

In addition to the cab mounted switch for the rear scene lights, the rear scene lights shall illuminate when the transmission is placed in reverse gear and the apparatus is operating as an emergency vehicle (Primary Warning switch on).

### **REAR TRAFFIC WARNING LIGHT**

One (1) Whelen LED "Traffic Advisor", model TAL65 36", rear directional light shall be installed on the rear of the body.

The light shall be equipped with six (6) lamps.

The directional light shall be activated by a control module.

The control module shall be conveniently located near the driver's position.

The rear directional light shall be wired through the load management system of the unit.

### **TRAFFIC ADVISOR - RECESS MOUNTING IN REAR SHEET**

The traffic advisor shall be recess mounted in the rear sheet.

### **GENERATOR**

One (1) Harrison Hydraulic Driven Generator model number 8.0MCR-16R/5A rated at 8000 watts, 68/34 amps, 120/240VAC, 60 Hz, 1-phase shall be provided.

The system shall be designed and assembled by a company with no less than 10 years experience in the manufacture of hydraulic driven generators. The system shall be tested prior to shipping and be accompanied with a test report. The generator shall be tested at various loads from no load to full load to ensure reliable power delivery at various loads.

The motor/generator shall be placed in a frame which affords protection to the components and provides a unitized mounting module containing the motor/generator, reservoir, oil cooler, filtration, on/off manifold containing a cross port check valve allowing unit to be started and shut down remotely.

The generator shall be a commercial type with a heavy-duty bearing and of brush less design to ensure low maintenance. No brushes or slip rings shall be allowed. The reservoir shall include an oil level sight gauge, oil temperature gauge; fill cap, oil filter, and a venturi boost unit to provide positive pressure to the pump suction port.



The generator and motor shall be close coupled and aligned using a Morse taper with a through bolt to secure the motor to the generator. No two (2) bearing generators shall be used.

The system must be capable of producing the rated full power when driven from the vehicle PTO from idle to maximum engine speed.

The generator system must be able to operate on either a Constant Engaged PTO or a Hot Shift PTO. The Generator must be able to be used while vehicle is either stationary or in motion.

The hydraulic motor and pump shall be of axial piston design to provide low internal leakage and a high degree of frequency stability. No gear pumps or motors shall be used. The pump shall match the system with the proper orifice, pressure compensator, and load sense settings to provide stable output regardless of engine rpm or electrical load demands.

The system shall be capable of normal operations using a commonly available ISO 46 hydraulic fluid. All fluid service points shall be in close proximity to the reservoir for ease of scheduled maintenance.

When properly installed, the system shall be warranted for a period of not less than two (2) years or 2000 hours, whichever should come first.

The generator shall be remotely turned on/off by using a 12 VDC switch mounted on the cab dash.

Harrison shall provide a four (4) foot s/o cord so that it can be easily wired to the truck without the need for opening the junction box.

A Quadra meter containing the volt, amp, and frequency is to be provided and installed in a location that is away from the weather and water over spray. If meter is to be installed in the elements then an upgraded digital meter is to be used.

### **GENERATOR**

The generator shall be equipped with an additional updraft fan.

### **GENERATOR LOCATION**

The generator shall be mounted above the pump enclosure on the driver side.

Locating the generator greater than 144" from the main breaker panel may require the installation of an additional power disconnecting means.

### **GENERATOR RUNNING LIGHT**

A 120 volt generator running light shall be installed on the cab dash.

### **GENERATOR RUNNING LIGHT**

A 120 volt generator running light shall be installed on the pump panel.

### **HARRISON HOT SHIFT PTO**

A hot shift PTO shall be provided on the transmission for the Harrison generator.



The PTO shall be controlled from the cab. The control shall include a PTO engagement switch and a PTO engaged indicator light.

### **DIGITAL QUAD METER FOR HARRISON GENERATORS**

A weatherproof digital Quadra meter containing the volt, amp, and frequency shall be installed near the breaker panel.

### **WHELEN PIONEER 150 WATT 120V LED TELE LIGHTS REAR**

Two (2) Whelen, model #PFP2AP 150 watt LED telescoping lights shall be provided. Each light shall be mounted to a Whelen, side mounted, push up scene light, deployable in a full 360 degree rotation. The tightening mechanism shall be of a twist lock design, the use of a knob or latch to release the pole in order to raise and lower the telescoping portion of the pole shall not be accepted.

The lights shall be mounted on the rear of the cab, one (1) each side. Wiring used for the lighting shall be a minimum of 16 gauge three (3) wire cable that is properly supported and protected from damage.

Two (2) model #PFP2AP watt light heads shall require one (1) 120 V, 15 amp circuit breaker.

### **LIGHTS REAR OF CAB SWITCHED @ CAB DASH**

Cab dash, with 12 volt switch

### **LIGHTS REAR OF CAB SWITCHED @ PUMP PANEL**

Pump panel, with 12 volt switch

### **WHELEN PIONEER 150 WATT 120V LED TELE LIGHTS REAR**

#### **TELESCOPING LIGHTS - REAR OF BODY**

Two (2) Whelen, model #PFP2AP 150 watt LED telescoping lights shall be provided. Each light shall be mounted to a Whelen, side mounted, push up pole, deployable in a full 360 degree rotation. The tightening mechanism shall be of a twist lock design, the use of a knob or latch to release the pole in order to raise and lower the telescoping portion of the pole shall not be accepted.

The lights shall be mounted on the front face of the body, one (1) each side. Wiring used for the lighting shall be a minimum of 16 gauge three (3) wire cable that is properly supported and protected from damage.

Two (2) model #PFP2AP 150 watt light heads shall require one (1) 120 V, 15 amp circuit breaker.

### **LIGHTS REAR OF BODY SWITCHED @ CAB DASH**

Cab dash, with 12 volt switch

### **LIGHTS REAR OF BODY SWITCHED @ PUMP PANEL**

Pump panel, with 12 volt switch

### **ELECTRIC CORD REEL #1**

One (1) Hannay Model #ECR-1620-17-18, 120 volt, electric rewind cord reel shall be provided and wired to the breaker panel.

The reel shall be securely mounted and equipped with a rewind control adjacent to the reel.



### **ELECTRIC CORD REEL #1 LOCATION**

The cord reel shall be mounted above the pump enclosure on the officer side.

### **ELECTRIC CORD REEL #1 ROLLER**

A Hannay 4-way stainless steel roller assembly shall be provided. The roller assembly opening shall be the full width of the reel drum.

### **ELECTRIC CORD REEL #1 REWIND**

A reel rewind switch(s) shall be provided adjacent to the reel.

### **ELECTRIC CORD REEL #1 CABLE**

Two hundred fifty (250) feet of Type SO yellow 10/3 heavy duty electric cable shall be provided on the reel.

### **ELECTRIC CORD REEL #1 TERMINATION**

One (1) NEMA L5-20R, 20 amp, three prong twist-lock receptacle shall be provided on the end of the cable.

### **ELECTRIC CORD REEL #1 JUNCTION BOX**

A Circle-D Model #PF51GFCI-5P, four (4) outlet junction box(es) with one (1) NEMA 5-20R GFCI rated straight blade receptacle and three (3) NEMA L5-20R twist-lock receptacles with 6" pigtail with a NEMA L5-20P twist-lock plug shall be provided.

### **ELECTRIC CORD REEL #1 JUNCTION BOX HOLDER**

A holder(s) constructed from 1/8" tread plate shall be provided for each cord reel(s) junction box. The location of the holder shall be adjacent to the cord reel roller assembly or as directed by the fire department.

### **ELECTRIC CORD REEL #1 CIRCUIT BREAKER**

The circuit breaker used to protect any device attached to the cord reel shall be sized to the smallest electrical connection used.

### **ELECTRIC CORD REEL #1 BALL STOP**

A cable ball stop(s) shall be installed on the cable to keep the end from passing through the roller assembly.

### **BACK-UP ALARM**

A Code 3, model # CA360C, 107dBA back-up alarm, shall be provided and installed at the rear of the apparatus under the tailboard.

The back-up alarm shall activate automatically when the transmission is placed in reverse gear and the ignition is "on."



### **ELECTRONIC SIREN**

One (1) Whelen # 295SLSA1, 100 watt electronic siren shall be provided featuring: bottom mount control head in cab, "Si-Test" self diagnostic feature, six (6) function siren, radio repeat, and public address.

The electronic siren and speaker shall meet the NFPA required SAE certification to ensure compatibility between the siren and speaker.

### **SIREN CONTROL**

A dash mounted switch shall be provided for the driver to control the electronic siren.

### **WHELEN SA315P SPEAKER**

One (1) Whelen, model # SA315P composite black siren speaker, shall be provided, recessed in the front bumper and wired to the electronic siren.

### **POLISHED STEEL ELECTRONIC SIREN SPEAKER GRILL**

A custom electric siren speaker grill shall be provided. This grill shall include the KME company logo cut into the center.

### **HALE QMAX-150 1500 GPM SINGLE STAGE PUMP**

- HALE QMAX-150
- 1500 G.P.M.

Single Stage The pump must deliver the percentage of rated capacity at the pressure listed below:

- 100% of rated capacity at 150 P.S.I. net pump pressure
- 100% of rated capacity at 165 P.S.I. net pump pressure
- 70% of rated capacity at 200 P.S.I. net pump pressure
- 50% of rated capacity at 250 P.S.I. net pump pressure.

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA-1900 rated performance.

The entire pump shall be manufactured and tested at the pump manufacturer's factory. The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable the pump to meet and exceed its rated performance. The entire pump both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to performance specs as outlined by the latest NFPA-1901. Pump shall be free from objectionable pulsation and vibration. The pump body and related parts shall be of fine grain alloy cast iron with a minimum tensile strength of 30,000 PSI. All moving parts in contact with water shall be of high quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable. Pump body shall be horizontally split, on a single plane in two sections for easy removal of entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in chassis.





Pump shaft to be rigidly supported by three bearings for minimum deflection. One high lead bronze sleeve bearing shall be located immediately adjacent to the impeller (on side opposite the gearbox). The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure balanced to exclude foreign material. The pump shaft shall be heat-treated, electric furnace, corrosion resistant stainless steel to be super-finished under packing with galvanic corrosion (zinc foil separators in packing) protection for longer shaft life. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of gearbox.

The pump shall have one double suction impeller. The pump body shall have two opposed discharge volute cutwaters to eliminate radial unbalance. Pump impeller shall be hard, fine grain bronze of the mixed flow design, accurately machined, and individually balanced. The vanes of the impeller intake eyes shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. 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.

### **PUMP RATIO**

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

The manufacturer shall supply at time of delivery copies of the pump manufacturer's certification of hydrostatic testing, the engine manufacturer's current certified brake horsepower curve.

### **PUMP MOUNTS - MID-SHIP PUMPS**

Extra heavy duty pump mounting brackets shall be furnished.

These shall be bolted to the frame rails in such a position to perfectly align the pump so that the angular velocity of the drive line joints shall be the same on each end of the drive shaft.

This shall assure full capacity performance with a minimum of vibration. Mounting hardware shall utilize Grade 8 bolts.

### **HALE MECHANICAL PUMP SEAL**

The mid ship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions.

This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 PSI.

The mechanical seal assembly shall be 2 inches in diameter and consists of a carbon sealing ring, stainless steel coil spring,

Viton rubber boot, and a tungsten carbide seat with a Teflon backup seal provided.

Only one (1) mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one piece pump shaft.

A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.





### **HALE PUMP DRIVE UNIT, K GEARBOX - QMAX, QTWO**

The drive unit shall be completely assembled and tested at the pump manufacturer's factory. Pump gearbox shall be of sufficient size to withstand up to 18,500 lbs. ft. of drive through torque of the engine system. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

Gearbox housing is constructed of high strength cast iron with no structural aluminum parts. The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine. All gears both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated and hardened, to give an extremely accurate gear for long life, smooth, quiet running, and higher load carrying capability. An accurately cut helical high contact design shall be provided with an exclusive Anti-Hop out Design which keeps the unit firmly in the gear selected. The more torque you put to the gearbox the tougher the grip to stay in gear. There will be no exceptions.

The gearbox is equipped with a power shift with progressive engagement to assure consistent reliable shift in pump/road gear. The shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump. NO speed counter shall be furnished for the K-Gearbox, by Hale or KME. Any previously mentioned speed counter will be null and void.

### **INTERNATIONAL PUMP SHIFT**

The drive unit shall be equipped with a power shift. The shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder with stainless steel shaft.

The pump shift control, pump engaged light and ok to pump indicator light shall be provided utilizing the International multi-plex system. They shall be located in the lower left switch panel. Switch to be YELLOW in color to denote being for a strategic type switch function. A standard International air solenoid pack shall be utilized to lock the transfer case in road or pump.

This control shall be electronically interlocked through the International multi-plex system to prevent inadvertent activation or de-activation. This allows the control to be interlocked with engine rpm, transmission gear status and park brake state. The switch positions and indicator lights shall be clearly marked. The pump shift switch shall also serve as the manual lockup switch; in case of air pressure loss.

### **INTERNATIONAL PUMP SHIFT MANUAL OVERRIDE**

An emergency manual pump shift control shall be furnished on the left side pump panel which may be utilized if the air shift control does not operate.

### **PUMP INSTALLATION - COMMERCIAL**

#### **HALE ANODE BLOCKS - ALLOY - 2 TOTAL**

Two (2) Hale Alloy Anode blocks shall be provided and located one (1) on the suction side and one (1) on the discharge side of the pump to protect the pump from corrosion.

The Anodes shall be painted Safety Yellow for identification purposes.



### **AUXILIARY ENGINE COOLER**

An auxiliary cooler or heat exchanger shall be installed in the engine compartment between the engine and the chassis radiator.

The cooler shall permit the use of water from the pump for cooling the engine. The water supply line will be equipped with a strainer.

The cooling shall be done without mixing engine and pump water.

### **CLASS ONE "SENTRY PRESSURE GOVERNOR" CONTROL "SPG"**

Apparatus shall be equipped with a Class 1 "Sentry Pressure Governor" (SPG) that is connected to the Electronic Control Module (ECM) mounted on the engine.

The "SPG" shall operate as a pressure sensor (regulating) governor (PSG) utilizing the engines J1939 data for optimal resolution and response.

If J-1939 engine control is not supported by the engine manufacturer, then analog remote throttle control shall be provided by the Sentry display.

The Sentry display utilizes control algorithms that minimize pressure spikes during low or erratic water supply situations.

The Sentry display shall be backwards compatible to any engine that supplies J1939 RPM, Temperature and Oil Pressure information providing the ability to maintain a consistent fleet fire-fighting capability and reduce operator cross training and confusion.

The Sentry display shall have the ability to use either a 300 PSI or 600 PSI pressure transducers for intake and discharge pressures.

Programmable presets for RPM and Pressure settings shall be easily configurable using the SPGs straightforward menu structure.

The "SPG" shall also include indication of engine RPM, system voltage, engine oil pressure, and engine temperature with audible alarm output for all. The "SPG" uses the J1939 data bus for engine information, requiring no additional sensors to be installed.

### **CLASS ONE STAINLESS INTAKE RELIEF VALVE**

The apparatus shall be equipped with a Class 1 inlet relief valve that is of all stainless steel construction.

The relief valve shall comply with NFPA 1901.

It shall have an adjustable pressure relief setting from 75 psi to 350 psi and is factory preset at 125 psi.

The relief valve shall be used on the inlet side of the pump.

### **TRIDENT REMOTE PRIMING VALVE - FRONT SUCTION**

An additional primer control valve shall be furnished to prime the front suction.



The Trident Emergency products RPV (remote priming valve) shall activate using the same air that powers the AirPrime system when the coinciding panel valve is depressed.

#### **TRIDENT "MANUAL" AIR PRIMING SYSTEM**

The priming pump will be a Trident air primer system.

A push in primer handle will open the priming valve and prime the pump.

#### **ROTARY MASTER DRAIN VALVE**

A rotary type, 12 port, master drain valve shall be provided and controlled at the lower portion of the side pump panel.

The valve shall be located in pump compartment lower than the main body and connected in such a manner as to allow complete water drainage of the pump body and all required accessories.

Water shall be drained below the apparatus body and away from the pump operator.

#### **DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL**

All lines shall drain through the master drain valve or shall be equipped with individual drain valves, easily accessible, and labeled.

One (1) individual "Innovative Control" lift up drain valve shall be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

Drain/bleeder valves shall be located at the bottom of the side pump module panels. All drains and bleeders shall discharge below the running boards.

#### **SYNFLEX SUCTION, DISCHARGE, PRESSURE AND CONTROL LINE**

Small lines within the pump enclosure shall be constructed from Synflex hose.

Uses include but are not limited to such lines as priming control, gauge lines, drain lines, air control valves, pump shift, supplemental cooling, foam flush, and air bleeder valves.

#### **SUCTION INLETS - 6" INLETS**

Two (2) 6" N.S.T. suction inlets shall be provided, one on the driver side and one on the officer side pump panel.

A removable strainer shall be installed on each inlet.

#### **SHORT NECK MAIN PUMP SUCTION INLETS**

The main pump suction inlets shall be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

#### **BEHIND PANEL MOUNT**

All side gated inlet valves shall be recess mounted behind the side pump panels or body panels. There will be no exceptions.



### **6" NST INTAKE CAP - DS**

A 6" NST chrome plated long handle pressure vented cap shall be installed on driver side intake.

### **6" NST INTAKE CAP - OS**

A 6" NST chrome plated long handle pressure vented cap shall be installed on officer side intake.

### **SUCT TO TERMINATE THROUGH RH FRONT FACE OF BUMPER**

The front inlet terminates through the right side front face of the front bumper.

The suction shall be mounted so only the threads protrude through the bumper, allowing enough clearance for the hose coupling to be connected.

### **FRONT SUCTION 6" NST THREADS**

A 6" NST front suction inlet shall be provided at the front of the vehicle, plumbed from the pump.

### **6" NST MALE THREADS ON FRONT SUCTION**

The front suction pipe shall be equipped with a chrome, 6", NSTM thread adapter.

### **FRONT SUCTION, PLUMBING, 5" STAINLESS STEEL PIPING**

The front inlet shall be plumbed utilizing 5", schedule 10, stainless steel piping, 45 degree elbows, and a limited number of 90 degree sweep elbows in an assembly from the pump to the front of the cab.

A manual drain shall be provided ahead of the front wheel and a panel controlled drain shall be provided aft of the front wheel.

A minimum of two (2) grooved pipe couplings shall be furnished in this assembly to allow for flex and serviceability.

### **HALE MIV BUTTERFLY VALVE FOR FRONT SUCTION**

The front suction plumbing shall be fitted with a Hale Master Intake Valve (MIV), on the front suction inlet.

The valve shall be in the pump enclosure area with a manual override located directly on the valve actuator.

The valve body and all related components that are in contact with water shall be manufactured of fine grained, corrosion resistant bronze.

The valve housing shall incorporate a pressure relief valve, set at the pump manufacturers facility to a rating of 125 PSI.

The pressure relief valve shall provide protection for the suction hose even with the valve in the closed position.

The valve shall incorporate NFPA compliance, large diameter hose air bleed valve, controlled at the operator's panel.



### **HALE MIV ELECTRIC VALVE - FRONT SUCTION CONNECTION**

The front suction valve shall be operated by a twelve (12) volt DC motor, controlled from the pump operator's panel.

It shall also incorporate a manual override, mounted at the valve.

The electric control shall incorporate a placard with status lights to indicate whether the valve is in the closed, open or throttled position.

The valve shall not be able to move from fully open to fully closed in under three (3) seconds, in compliance with NFPA-1901.

### **6" NST FRONT SUCTION PRESSURE VENTED CAP**

A 6", NST chrome plated long handle vented cap(s) shall be installed on front suction.

### **2-1/2" DS AUX SECONDARY SUCTION INLET REAR OF MAIN**

One (1) 2-1/2" auxiliary suction shall be provided at the driver side pump panel, to the rear of the main inlet (if space and other components allow).

The 2-1/2" auxiliary suction shall terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

### **2-1/2" AKRON #8800 S.S. BALL VALVE, DS REAR AUX SUCTION**

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side rear auxiliary suction.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

### **SWING CONTROL @ VALVE, DS REAR AUX SUCTION**

A 1/4 turn swing control handle shall be provided on the driver side rear auxiliary suction valve.

### **2-1/2" OS AUX SECONDARY SUCTION INLET REAR OF MAIN**

One (1) 2-1/2" auxiliary suction shall be provided at the officer side pump panel, to the rear of the main inlet (if space and other components allow).

The 2-1/2" auxiliary suction shall terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

### **2-1/2" AKRON #8800 S.S. BALL VALVE, OS AUX SUCTION**

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the officer's side auxiliary suction.

The valve shall have an all brass body with flow optimizing, stainless steel ball and dual polymer seats.

### **SWING CONTROL @ VALVE, OS AUX SUCTION**

A 1/4 turn swing control handle shall be provided on the officer side auxiliary suction valve.



### **TANK TO PUMP**

One (1) 4" tank to pump line shall be piped through the front bulkhead of the tank with a 90 degree elbow down into the tank sump.

This line shall be plumbed directly into the rear of the pump suction manifold for maximum efficiency.

A check valve shall be provided to prevent accidental pressurization of the water tank through the pump connection.

Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose.

### **3" AKRON #8800 SERIES - S.S. BALL, VALVE , TANK TO PUMP**

An Akron Brass 3" Generation II Swing-Out Valve shall be provided between the pump suction manifold and the water tank.

The valve shall have an all brass body with flow optimizing, stainless steel ball and dual polymer seats.

### **3" PUSH/PULL CONTROL FOR TANK TO PUMP**

A push/pull control handle shall be located on the operator's panel with function plate.

### **TANK FILL LINE 2" FROM PUMP - SIDE MOUNT**

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel shall be provided. A deflector shield inside the tank shall be furnished. Tank fill plumbing shall utilize 2" high pressure hose for tank connection to accommodate flexing between components.

### **2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE MOUNT**

An Akron Brass 2" Generation II Swing-Out Valve shall be provided between the pump discharge manifold and the water tank.

The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.

### **PUSH/PULL CONTROL FOR TANK FILL**

A push/pull control handle shall be located on the operator's panel with function plate.

### **DS MAIN DISCHARGE #1**

A discharge shall be provided and located at the driver's side pump panel.

The driver's side discharges # 1 shall terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.





### **2-1/2" AKRON #8800 SERIES - S.S. BALL, DS #1**

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side #1 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

### **DS #1 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST**

The discharge valve shall be equipped with a straight 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

### **2-1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #1**

A 2 1/2 " NST, chrome plated pressure vented cap shall be installed on driver's side #1 discharge.

### **SWING 1/4 TURN CONTROL FOR DS DISCHARGE #1 -SIDE MOUNT**

The driver's side # 1 discharge valve shall be controlled by a 1/4 turn swing control handle located on the operator's panel.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The driver's side # 1 discharge shall be equipped with a 2.5" Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

### **DS MAIN DISCHARGE #2**

A discharge shall be provided and located at the driver's side pump panel.

The driver's side discharges # 2 shall terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

### **2-1/2" AKRON #8800 SERIES - S.S. BALL, DS #2**

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side #2 discharge.



The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

**DS #2 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST**

The discharge valve shall be equipped with a straight 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

**2-1/2" NST PRESSURE VENTED CAP - DS DISCHARGE #2**

A 2 1/2" NST, chrome plated, pressure vented cap shall be installed on driver's side # 2 discharge.

**SWING 1/4 TURN CONTROL FOR DS DISCHARGE #2 -SIDE MOUNT**

The driver's side # 2 discharge valve shall be controlled by a 1/4 turn swing control handle located on the operator's panel.

**INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The driver's side # 2 discharge shall be equipped with a 2.5", Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

**OS MAIN DISCHARGE #1**

A discharge shall be provided and located at the officer's side pump panel.

The officer's side discharges #1 shall terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

**2-1/2" AKRON #8800 SERIES - S.S. BALL, OS #1, SIDE**

An Akron Brass, 2 1/2" Generation II, Swing-Out Valve shall be provided for the officer's side #1 discharge.

The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.



### **OS #1 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST**

The discharge valve shall be equipped with a straight, 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

### **2-1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #1**

A 2 1/2" NST, chrome plated, pressure vented cap shall be installed on officer's side # 1 discharge.

### **PUSH/PULL CONTROL FOR OS DISCHARGE #1 -SIDE MOUNT**

The officer's side, # 1 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The officer's side, # 1 discharge shall be equipped with a 2.5", Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

### **OS MAIN DISCHARGE #2**

A discharge shall be provided and located at the officer's side pump panel.

The officer's side discharges #2 shall terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

### **2-1/2" AKRON #8800 SERIES - S.S. BALL, OS #2, SIDE MOUNT**

An Akron Brass, 2 1/2" Generation II, Swing-Out Valve shall be provided for the officer's side #2 discharge.



The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.

### **OS #2 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST**

The discharge valve shall be equipped with a straight, 2 1/2" NST, adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

### **2-1/2" NST PRESSURE VENTED CAP - OS DISCHARGE #2**

A 2 1/2" NST, chrome plated, pressure vented cap shall be installed on officer's side #2 discharge.

### **PUSH/PULL CONTROL FOR OS DISCHARGE #2 -SIDE MOUNT**

The officer's side, #2 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The officer's side, #2 discharge shall be equipped with a 2.5", Innovative Controls, pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

### **OS REAR DISCHARGE 3"**

A 3" NST rear discharge shall be provided at the rear of the vehicle, plumbed from the pump.

### **OS REAR DISCHARGE THROUGH TANK SLEEVE @ OS REAR BODY**

The rear discharge shall be plumbed through a pipe sleeve integrated into the water tank that shall terminate on the rear body panel, on the officer side of the body.

### **3" NST MALE THREADS ON OS REAR DISCHARGE**

The officer side rear discharge pipe shall be furnished with 3" NSTM threads.

The discharge shall be equipped with a 30 degree droop terminating in 3" NSTM threads.



### **OS REAR DISCHARGE, PLUMBING, 3" STAINLESS STEEL PIPING**

The officer side rear discharge shall be plumbed utilizing 3" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the rear of the vehicle.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly to allow for flex and serviceability.

### **3" AKRON #8800 SERIES - S.S. BALL, VALVE OS REAR DISCHARGE**

An Akron Brass 3" Generation II Swing-Out Valve shall be provided for the officer's side rear discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

### **PUSH/PULL CONTROL FOR OS REAR DISCHARGE**

The officer side rear discharge valve shall be controlled by a push/pull handle located on the operator's panel.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The officer side rear discharge shall be equipped with a 2.5" Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

### **DECK GUN DISCHARGE**

A deck gun discharge shall be plumbed from the pump to an area on top of the vehicle.

The deck gun piping shall be firmly supported and braced.

### **DECK GUN DISCH TERMINATE @ CENTER OF DUNNAGE**

The deck gun discharge shall be located in the center of the dunnage area above the pump module.

A pedestal type, 1/4" steel plate support assembly shall be provided to stabilize deck gun plumbing below deck gun mount flange.



### **3" NPT MALE THREADS ON DECK GUN DISCHARGE**

The deck gun discharge pipe shall terminate with 3" NPT threads.

### **DECK GUN DISCHARGE**

Deck gun height will be limited to the critical overall apparatus height listed in the spec. To avoid excessive travel heights the monitor will be positioned as low a practical while still allowing functionality of water stream.

### **DECK GUN DISCHARGE, PLUMBING, 3" STAINLESS STEEL PIPING**

The deck gun discharge shall be plumbed utilizing 3" schedule 10 stainless steel piping, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to the deck gun location.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly to allow for flex and serviceability.

### **3" AKRON #8800 SERIES - S.S. BALL, VALVE DECK GUN**

An Akron Brass 3" Generation II Swing-Out Valve shall be provided for the deck gun discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

### **PUSH/PULL CONTROL FOR DECK GUN DISCHARGE**

The deck gun discharge valve shall be controlled by a push/pull handle located on the operator's panel.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The deck gun discharge shall be equipped with a 2.5" diameter Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

### **#1 FRONT DISCHARGE 1-1/2"**

A 1 1/2" front #1 discharge shall be plumbed to the front bumper of the vehicle.





### **1-1/2" NST CHICKSAN SWIVEL @ TOP DS FRONT BUMPER #1**

The front #1 discharge shall terminate on the top driver's side of the front bumper extension gravel shield with a chrome 1 1/2" NST chicksan swivel adapter.

### **#1 FRONT DISCHARGE, PLUMBING, 2" STAINLESS STEEL PIPING**

The front #1 discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping, flexible hosing, 45 degree elbows, and a limited number of 90 degree sweep elbows in an assembly from the pump to the front of the vehicle.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly to allow for flex and serviceability.

Automatic discharge drains shall be provided at all low points in the plumbing.

### **2" AKRON #8800 SERIES - S.S. BALL, VALVE FRONT #1 DISCHARGE**

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the front #1 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

### **PUSH/PULL CONTROL FOR FRONT #1 DISCHARGE**

The front #1 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

### **1-1/2" NST FRONT #1 DISCHARGE PRESSURE VENTED CAP**

A 1 1/2" NST chrome plated pressure vented cap shall be installed the front #1 discharge.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The front #1 discharge shall be equipped with a 2.5" Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.



### **LOWER SPEEDLAY**

The lower speedlay shall be a transverse hose bed, which shall be designed as an integral part of the pump module design, located forward of the pump above main inlet and side discharge connections.

Hose deployment shall be accomplished from either side of the apparatus.

The speedlay hose bed flooring shall be designed to be removable, constructed from brushed finish, perforated aluminum material.

### **SLIDE-OUT- POLY PROPYLENE TRAY FOR LOWER SPEEDLAY**

A polypropylene three (3) sided "U" shaped slide out tray shall be provided for lower speedlay to allow easy loading of the hose from the vehicle. The tray shall be designed to slide out from either side of the vehicle.

The tray shall have a cut out on each side, so it may be used as a handle to remove. The handle area shall extend beyond the side panel on each end, allowing removal without getting one's fingers caught in the latch tray mechanism.

A retention system will be provided for the speedlay tray(s).

### **STAINLESS STEEL SCUFF PLATES - LOWER SPEEDLAY**

The outer edge of the lower speedlay hosebed shall be trimmed stainless steel scuff plates. The scuff plate will reduce the clear opening of the speedlay on each side.

### **1-1/2" NST CHICKSAN SWIVEL - LOWER SPEEDLAY**

The lower speedlay discharge shall terminate through the rear wall of the hosebed with a 1 1/2" NSTM chicksan swivel adapter.

The hosebed rear wall shall be slotted to allow the swivel to through the wall, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

### **LOWER SPEEDLAY CAPACITY - 250 FEET OF 1-3/4" HOSE**

lower speedlay shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 250 feet of 1-3/4" fire hose.

The hose shall be loaded in a double stack configuration.

### **LOWER SPEEDLAY, PLUMBING, 2" STAINLESS STEEL PIPING**

The lower speedlay discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to speedlay hosebed.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly to allow for flex and serviceability.



## **2" AKRON #8800 SERIES - S.S. BALL, VALVE SPEEDLAY**

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the lower speedlay discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

## **PUSH/PULL CONTROL LOWER SPEEDLAY**

The lower speedlay discharge valve shall be controlled by a push/pull handle located on the operator's panel.

## **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The lower speedlay discharge shall be equipped with a 2.5" Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

## **MIDDLE SPEEDLAY**

The middle speedlay shall be a transverse hose bed, which shall be designed as an integral part of the pump module design, located forward of the pump just above the lower speedlay.

Hose deployment shall be accomplished from either side of the apparatus.

The speedlay hose bed flooring shall be designed to be removable, constructed from brushed finish, perforated aluminum material.

## **SLIDE-OUT- POLY PROPYLENE TRAY FOR MIDDLE SPEEDLAY**

A polypropylene three (3) sided "U" shaped slide out tray shall be provided for middle speedlay to allow easy loading of the hose from the vehicle. The tray shall be designed to slide out from either side of the vehicle.

The tray shall have a cut out on each side so it may be used as a handle to remove. The handle area shall extend passed the side panel on each end, allowing removal without getting one's fingers caught in the latch tray mechanism.

A retention system will be provided for the speedlay tray(s).



### **STAINLESS STEEL SCUFF PLATES - MIDDLE SPEEDLAY**

The outer edge of the middle speedlay hosebed shall be trimmed stainless steel scuff plates. The scuff plate will reduce the clear opening of the speedlay on each side.

### **1-1/2" NST CHICKSAN SWIVEL - MIDDLE SPEEDLAY**

The middle speedlay discharge shall terminate through the rear wall of the hosebed with a 1 1/2" NSTM chicksan swivel adapter.

The hosebed rear wall shall be slotted to allow the swivel to through the wall, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

### **MIDDLE SPEEDLAY CAPACITY - 200 FEET OF 1-3/4" HOSE**

middle speedlay shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

The hose shall be loaded in a double stack configuration.

### **MIDDLE SPEEDLAY, PLUMBING, 2" STAINLESS STEEL PIPING**

The middle speedlay discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to speedlay hosebed.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly to allow for flex and serviceability.

### **2" AKRON #8800 SERIES - S.S. BALL, VALVE SPEEDLAY**

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the middle speedlay discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

### **PUSH/PULL CONTROL MIDDLE SPEEDLAY**

The middle speedlay discharge valve shall be controlled by a push/pull handle located on the operator's panel.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The middle speedlay discharge shall be equipped with a 2.5" Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

### **UPPER SPEEDLAY**

upper speedlay shall be a transverse hose bed, which shall be designed as an integral part of the pump module design, located forward of the pump just above the lower speedlay.

Hose deployment shall be accomplished from either side of the apparatus.

The speedlay hose bed flooring shall be designed to be removable, constructed from brushed finish, perforated aluminum material.

### **SLIDE-OUT- POLY PROPYLENE TRAY FOR UPPER SPEEDLAY**

A polypropylene three (3) sided "U" shaped slide out tray shall be provided for upper speedlay to allow easy loading of the hose from the vehicle. The tray shall be designed to slide out from either side of the vehicle.

The tray shall have a cut out on each side so it may be used as a handle to remove. The handle area shall extend passed the side panel on each end, allowing removal without getting one's fingers caught in the latch tray mechanism.

A retention system will be provided for the speedlay tray(s).

### **STAINLESS STEEL SCUFF PLATES - UPPER SPEEDLAY**

The outer edge of the upper speedlay hosebed shall be trimmed stainless steel scuff plates. The scuff plate will reduce the clear opening of the speedlay on each side.

### **1-1/2" NST CHICKSAN SWIVEL - UPPER SPEEDLAY**

The upper speedlay discharge shall terminate through the rear wall of the hosebed with a 1 1/2" NSTM chicksan swivel adapter.

The hosebed rear wall shall be slotted to allow the swivel to through the wall, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

### **UPPER SPEEDLAY CAPACITY - 200 FEET OF 1-3/4" HOSE**

upper speedlay shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA -1901 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

The hose shall be loaded in a double stack configuration.

### **UPPER SPEEDLAY, PLUMBING, 2" STAINLESS STEEL PIPING**

The upper speedlay discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to speedlay hosebed.



A minimum of one (1) grooved pipe coupling shall be furnished in this assembly to allow for flex and serviceability.

### **2" AKRON #8800 SERIES - S.S. BALL, VALVE SPEEDLAY**

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the upper speedlay discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

### **PUSH/PULL CONTROL UPPER SPEEDLAY**

The upper speedlay discharge valve shall be controlled by a push/pull handle located on the operator's panel.

### **INNOVATIVE CONTROLS LIQUID FILLED 2-1/2" PRESS GAUGE**

The upper speedlay discharge shall be equipped with a 2.5" Innovative Controls pressure gauge.

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

The 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 gauge shall have black graphics on a white background.

### **ONE (1) ADDITIONAL SPEEDLAY TRAY**

An additional speedlay tray shall be provided to allow the fire department to pre-load a spare hose load for the desired speedlay.

The tray shall be designed to have the same capacity of hose, matching the existing speedlay trays.

The tray shall be shipped loose with the vehicle.

### **TWO (2) ADDITIONAL SPEEDLAY TRAYS**

Two (2) additional speedlay trays shall be provided to allow the fire department to pre-load spare hose for a desired speedlay.

The two (2) trays shall be designed to have the same capacity of hose, matching the existing speedlay trays.

The tray shall be shipped loose with the vehicle.





### **VINYL END FLAPS FOR SPEEDLAYS**

Vinyl coated polyester covers shall be provided on each side of the speed lays to retain hose in the speed lays.

The covers shall be secured with expandable loops sewn into the covers and hooks on the apparatus.

### **SPEEDLAY FLAP BLACK IN COLOR**

The speed lay end flap shall be black in color.

### **FOAM SYSTEM STAINLESS PIPING - 1 INCH FROM FOAM SOURCE**

All foam concentrate plumbing from the tank or auxiliary foam inlet to the foam system components shall be stainless steel and nonferrous material.

The foam system piping shall incorporate a check valve to prevent water from entering the foam tank; the discharge piping shall also include a check valve to prevent foam solution from back feeding into the discharge side of the pump.

Individual discharge piping shall be as specified for each discharge.

The complete foam system shall be tested in accordance with NFPA-1901.

### **FOAMPRO 2001 CLASS "A AND/OR B" FOAM SYSTEM**

A FoamPro model 2001, electronic, fully automatic, variable speed, direct injection, discharge side foam proportioning system shall be installed in the pumping system.

The system shall be capable of handling Class "A" foam concentrates and most Class "B" foam concentrates.

The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures.

System must be capable of delivering accuracy to within 3% of calibrated settings over the advertised operation range when installed according to factory standards.

The system shall be equipped with a digital electronic control display suitable for installation on the pump panel.

Incorporated within the control display shall be a microprocessor that receives input from the system flow meter, while also monitoring foam concentrate pump output, comparing values to ensure that the operator preset proportional amount of foam concentrate is injected into the discharge side of the fire pump.

A paddlewheel-type flow meter shall be installed in the discharge or manifold system specified to be foam capable.

A Full flow check valve shall be provided to prevent foam contamination of fire pump and water tank or water contamination of foam tank.



A 12 or 24-volt electric motor drive positive displacement foam concentrate pump, rated up to 2.5 GPM (9.5 L/min) @ 150 psi with operating pressures up to 400 psi (27.6 BAR), shall be installed in a suitable, accessible location.

The system shall draw a maximum of 40 amps @ 12 VDC or 21 amps @ 24 VDC.

A pump motor electronic driver (mounted to the base of the pump) shall receive signals from the computer control display and power the 1/2 hp (0.40 Kw) electric motor directly coupled to the concentrate pump in a variable speed duty cycle to ensure that the correct proportion of concentrate preset by the pump operator is injected into the water stream.

The digital computer control display located on the pump operator's panel shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

- Provide push-button control of foam proportioning rates from 0.1% to 9.9%, in 0.1% increments
- Show current flow-per-minute of water
- Show total volume of water discharged during and after foam operations are completed
- Show total amount of foam concentrate consumed
- Simulate flow rates for manual operation
- Perform setup and diagnostic functions for the computer control microprocessor
- Flash a low concentrate warning when the foam concentrate tank(s) runs low
- Flash a no concentrate warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty

The digital computer control display shall interface with the options listed; provide dual foam calibration, and display separate totals for each foam concentrate used.

If two foam tanks are required and piped to the foam concentrate pump, either an electric dual tank valve or the manual dual tank valve shall be provided.

Components of the complete proportioning system shall include:

- Operator control and display
- Paddlewheel flow meter
- Pump and electric motor/motor driver
- Wiring harnesses
- Low-level tank switch (Switches)
- Electronic dual tank valve or manual dual tank valve (if more than one tank)
- Foam injection check valve
- Main waterway check valve

Accurate concentration proportioning can be achieved, based on the following water flows:

- 85 GPM water 3.0% concentration
- 260 GPM water 1.0% concentration
- 520 GPM water 0.5% concentration
- 1300 GPM water 0.2% concentration



Note: Multiple discharges plumbed to this system may affect performance if the flow rates are exceeded by any one discharge or the totality of multiple discharges at one time!

### **INJECTION SYSTEM DISCHARGE PLUMBING**

The discharge piping shall be equipped with a properly sized flow meter sensor, based on the systems capabilities.

The foam system shall be plumbed to the following discharge/s through the discharge piping or manifold system:

#### **INJECTION FOAM SYSTEM INSTALLED ON SPEEDLAY #1**

Speedlay #1 discharge.

#### **INJECTION FOAM SYSTEM INSTALLED ON SPEEDLAY #2**

Speedlay #2 discharge

#### **INJECTION FOAM SYSTEM INSTALLED ON SPEEDLAY #3**

Speedlay #3 discharge.

#### **FOAM SYSTEM INSTALLED ON FRONT DISCHARGE**

Front discharge.

#### **INJECTION FOAM SYSTEM INSTALLED ON OS REAR DISCHAR**

Officer's side rear discharge.

### **SIDE MOUNT PUMP MODULE**

The pump module shall be a self-supported structure mounted independently from the body and chassis cab.

The design must allow normal frame deflection without imposing stress on the pump module structure or side running boards. The pump module shall be securely mounted to the chassis frame rails.

### **PUMP MODULE MATERIAL**

The pump module shall be a welded frame work utilizing structural aluminum components properly braced to withstand the rigors of chassis frame flex.

### **SIDE MOUNT DUNNAGE AREA**

A dunnage area shall be provided above the pump enclosure for equipment mounting and storage. This area shall be furnished with a removable 3/16" tread plate floor and shall be enclosed on the sides.

NOTE: The size of this storage area may vary when top mounted crosslays, booster reel(s), etc., are specified and located in this area.



### **ONE (1) HOT WATER HEATER FOR PUMP ENCLOSURE**

The pump enclosure shall be equipped with one (1) hot water heater which utilizes chassis engine coolant run through heater hoses to prevent freezing of pump components during pumping operations in low temperature climates.

The heater shall be switched on the pump operator's panel.

### **PUMP ENCLOSURE HEAT PAN**

A bolt-on pump heat pan fabricated from 1/8" aluminum shall be provided on the underside of the pump enclosure to act as a supplementary heating system by entrapping chassis exhaust heat during low temperature pumping operations.

The heat pan shall have a slide out, removable bottom panel which should be removed for warm weather usage.

### **RUNNING BOARD STEPS**

The driver and officer running board steps shall be fabricated of 3/16" tread plate plate.

The outside edge on each step shall be fabricated with a double break, return flange.

The steps shall be rigidly reinforced with a heavy duty support structure.

The running boards shall not form any part of the compartment design, and shall be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

### **SIDE MOUNT PUMP PANEL**

The pump operator's control panel shall be located on the driver side of the apparatus.

The pump enclosure side panels shall be completely removable and designed for easy access and servicing.

### **SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STEEL**

The left side operator's panel, gauge panel, right side pump panel and right side access door shall be fabricated from 12-gauge 304L stainless steel with a #4 (150/180 grit) standard brushed finish.

### **VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT**

A full width, vertically hinged gauge access panel shall be provided at the operator's position.

Chrome plated positive locks shall be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

### **OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR -**

The officer's side pump panel shall be split and vertically hinged to provide complete access to the pump and plumbing on the officer's side of the pump enclosure.

The panels shall be equipped with stainless steel hinges and secured with push type locks to hold the panels closed.



The drains located on the officer's side panel shall be fastened to the lower panel, which shall be stationary.

### **PANEL FASTENERS**

Stainless steel machine screws and lock washers shall be used to hold these panels in position.

The panels shall be easily removable to provide complete access to the pump for major service.

### **CAPS AND ADAPTERS SAFETY TETHER - BALL CHAIN**

All applicable discharge and suction caps, plugs and adapters shall be equipped with chrome plated ball chain and secured to the vehicle.

### **PUMP PANEL DISCH./SUCTION TRIM PLATES**

A high polished trim plate shall be provided around each discharge port and suction inlet opening to allow accessibility to the respective valve for service and repairs.

### **DISCHARGE GAUGE TRIM BEZELS**

Each individual discharge gauge shall be installed into a decorative chrome-plated mounting bezel that incorporates valve-identifying verbiage and color labels, unless manufacturer supplied otherwise.

### **IDENTIFICATION PLATES**

Color coded identification tags shall be provided for all gauges, controls, connections, switches, inlets and outlets.

### **PUMP OPERATOR'S PANEL, FULL WIDTH LIGHT SHIELD/STEP**

The pump operator's panel shall be equipped with a light shield/step that shall be full width of the control panel, and shall be positioned to cover the lights and prevent glare.

The light shield shall be fabricated from tread plate, which shall also serve as a step.

The step shall be a minimum of 8" deep X the width of the pump panel.

(Note: On apparatus with lowered style crosslays, the light shield shall be from the back of the crosslays to the rear of the pump house).

The light shield shall be equipped with the following lights:

### **TECNIQ E18 LED LIGHTS - LIGHT SHIELD/STEP**

Four (4) Tecniq #E18 LED lights.

One (1) light under the operator's panel light shield shall be actuated when fire pump is engaged in addition to the pump engaged light.



### **OS PUMP PANEL LIGHT SHIELD**

The officer side pump panel shall be equipped with a light shield that shall be full width of the control panel, and shall be positioned to cover the lights and prevent glare.

The light shield shall be equipped with the following lights:

### **TECNIQ E18 LED LIGHTS - LIGHT SHIELD**

Four (4) Tecniq E18 LED lights.

The lights shall be switched with the operator panel lights.

### **AIR HORN CONTROL BUTTON ON PUMP PANEL**

Pump panel air horn actuation button labeled "EVACUATION" in white letters with a red background.

### **PUMP PRESSURE & VACUUM TEST PORTS @ PANEL**

The pump panel shall be equipped with Vacuum Pressure test plugs to allow for test equipment to monitor pump pressure and vacuum levels.

Chrome plugs and labels shall be provided for the test ports.

### **4-1/2" CLASS ONE MASTER PRESSURE AND COMPOUND GAUGE**

One (1) 4-1/2" diameter pressure gauge (labeled: "PRESSURE") and one (1) 4-1/2" diameter compound vacuum gauge (labeled: "INTAKE") shall be provided.

The master gauges shall be Class One Sub-Z II, interlube filled.

The gauge faces shall be white with black numerals.

### **PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE**

All applicable pressure gauges shall have a range of 0 - 400 P.S.I., and the compound gauge shall have a range of -30" - 0 - 400 P.S.I.

### **PUMP CERTIFICATION - 750 GPM & UP**

The pump shall be third party performance tested to meet the requirements of NFPA-1900.

### **WATER TANK**

The water tank shall have a capacity of 1000 gallons, constructed from Poly material.

### **WATER TANK**

Water tank capacity may be reduced due to weight restrictions.





### **FILL TOWER**

The tank shall have a combination vent and manual fill tower.

The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum dimension of 12" x 12" outer perimeter.

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. 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 a minimum I.D. of that is designed to run through the tank, and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

### **WATER TANK**

The fill tower shall be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 4" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle.

### **WATER TANK**

A 3" drain plug shall be provided.

### **INTEGRAL FOAM TANK, 25 GAL. TANK "A"**

Included in the total capacity of the water tank, a 25 gallon integral foam storage area shall be built into the water tank.

The foam tank shall have a latched fill tower, properly labeled as the foam fill point.

A valved drain shall be provided.

### **WATER TANK LEVEL GAUGE**

An Innovative Controls model #3030358, Ultra-Bright LED water level monitor shall be provided on the pump operator's panel.

The level gauge shall contain ten (10) high intensity LEDs on the display in a vertical pattern allowing the full, 3/4, 1/2, 1/4 and refill levels to be easily distinguished at a glance.

The display shall use a two-dimensional, two-element lens to refract the light from the LEDs to provide full 180 visibility for the level indications.

### **WATER TANK LEVEL GAUGE**

The gauge shall use a pressure transducer #3030376-01 installed near the bottom of the water tank to determine the correct volume in the tank.



### **FOAM TANK "A" LEVEL GAUGE**

An Innovative Controls model #3030393-01, Ultra-Bright LED foam level monitor shall be provided on the pump operator's panel.

The level gauge shall contain ten (10) high intensity LEDs on the display in a vertical pattern allowing the full, 3/4, 1/2, 1/4 and refill levels to be easily distinguished at a glance.

The display shall use a two-dimensional, two-element lens to refract the light from the LEDs to provide full 180 visibility for the level indications.

### **GAUGE TRANSDUCER**

The gauge shall use a pressure transducer installed near the bottom of the foam tank to determine the correct volume in the tank.

### **FOAMPRO MANUAL DUAL TANK SELECTOR, A & B F**

A FoamPro Model 3435-0079, panel mounted, manual dual tank selector valve which provides a water flush when switching between the tank selection shall be provided to allow the use of Class "A" or "B" foam tanks.

This item selection includes one (1) low level sensor and one (1) "Y" strainer for the additional foam tank configuration.

### **APPARATUS BODY GENERAL DESCRIPTION**

The body side and compartment assemblies shall be designed and assembled to provide maximum strength and durability under all operating conditions. Special attention shall be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components shall be provided with a dissimilar metals isolation barrier to prevent electric corrosion.

The body design shall also incorporate removable panels to access spring hangers, rear body mounts and fuel tank sending units. The body assembly shall be an all-welded configuration. The body shall be completely isolated from the cab and pump module structure.

Dimensions used in this specification shall be the general outer dimension taken from a typical line diagram of the apparatus. These dimensions shall not take into account items like material thickness, access panels, doors, and other installed options.

### **100" WIDE BODY, 29"/14" DEEP SIDE COMPARTMENTS**

The fire body shall be 100" wide to provide the maximum amount of usable hose bed and compartment space. The side body compartments shall be 29" deep in any full depth areas and 14" deep in any split depth areas.

### **SWEEP-OUT COMPARTMENTS**

Compartment floors shall be welded to the compartment walls and have a sweep out design for easy cleaning.

Compartment with hinged doors shall have the door opening flanges bend down to produce the sweep-out design.



Compartments with roll-up style doors shall have the external floor flange stepped down to produce a sealing surface for the roll-up doors below the compartment floor.

The sweep out design shall also permit easy cleaning.

### **FASTENERS**

### **FASTENERS**

All exterior fasteners shall be stainless steel screws.

NOTE: The use of aluminum pop rivets or self tapping screws as a trim fastener shall not be acceptable.

### **COMPARTMENT LOUVERS**

Ventilation between compartments to atmosphere shall be provided and located to avoid water entry into compartments.

### **ACCESS PANELS**

Removable access panels shall be provided (if applicable) to access fuel tank sender, electrical junction compartment and rear body mounts.

Protective panels shall be located in the rear compartments providing access to the lights and associated wiring.

The covers shall also serve as protective covers to prevent inadvertent damage to lights or wiring from tools or equipment located in the compartment.

### **BODY MATERIAL: 12 GAUGE 304L STAINLESS STEEL**

All compartment panels and body side sheets shall be fabricated entirely from 12 gauge stainless steel (Type 304L). There will be no exception to the material type of 304L grade stainless steel. Each side compartment assembly shall be both spot welded and stitch welded to ensure proper weld penetration on all panels, while avoiding the possible warping caused by a full seam weld.

The side compartments shall be welded on a fixture to ensure true body dimensions of all door openings. The side compartments and body side panels are then set into a body squaring fixture where the super structure is installed and the entire body is aligned to be completely symmetrical. The super structure is then welded to the compartment side panels and the reinforcement plates are inserted which allows the compartment panels to become an integral component of the body support structure.

A full seam weld shall not be used to the applied heat which shall distort sheet metal and remove the protective coating from the perimeter of the welded area. All seams shall be caulked prior to the being finished to ensure proper compartment sealing.

### **BODY SUB FRAME - STAINLESS - 304L**

The body sub structure shall be an all welded configuration utilizing a combination of 3" x 1-1/2" Type 304L structural grade tubing.

The sub structure shall be designed to totally support the full length and width of the body.



The structure shall be welded to the body side compartments to incorporate the compartments into an integral part of the body weldment.

The sub structure shall be bolted to the sides of the chassis frame at four (4) points.

The two (2) forward mounting points shall utilize a spring mount to help isolate the body from chassis deflection.

This design shall provide storage capacity in each side compartment for a minimum of 500 lbs of equipment, and a minimum of 1000 lbs of equipment in the rear step compartment.

### **64" WIDE FENDER - CUSTOM**

The body fender shall be 64" long, this shall allow for the suspension and related components to be contained within the fender, preventing any intrusion into the body compartment storage area. Bodies with notches in the front and/or rear compartment for suspension components are not acceptable. There will be no exceptions.

### **FENDER WITH STORAGE OPTIONS**

#### **DRIVER FORWARD FENDER - TRIPLE STORAGE SLOT**

A storage compartment shall be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

The storage area shall be sized as tall and wide as possible in the fender (minimum of 14" wide x 15" tall with an angled floor by fender radius), and shall be 26" deep.

The compartment shall have a non-abrasive lined cradle storage area for each of the three (3) devices.

This storage compartment shall provide a minimum of 2.3 cubic feet of storage space.

#### **DRIVER REARWARD FENDER - TRIPLE STORAGE SLOT**

A storage compartment shall be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

The storage area shall be sized as tall and wide as possible in the fender (minimum of 14" wide x 15" tall with an angled floor by fender radius), and shall be 26" deep.

The compartment shall have a non-abrasive lined cradle storage area for each of the three (3) devices.

This storage compartment shall provide a minimum of 2.3 cubic feet of storage space.

#### **OFFICER FORWARD FENDER - TRIPLE STORAGE SLOT**

A storage compartment shall be inserted into the fender to provide a storage area for three (3) customer supplied SCBA cylinders (or fire extinguishers of similar size).

The storage area shall be sized as tall and wide as possible in the fender (minimum of 14" wide x 15" tall with an angled floor by fender radius), and shall be 26" deep.

The compartment shall have a non-abrasive lined cradle storage area for each of the three (3) devices.



This storage compartment shall provide a minimum of 2.3 cubic feet of storage space.

#### **OFFICER REARWARD FENDER - SLIDE OUT ABSORBENT BIN**

A slide out absorbent bin shall be installed in this fender position.

The storage bin shall be constructed of smooth aluminum.

The bin shall be installed on sliding locking tracks that allow the bin to extend out of the body fender for dumping/filling.

There shall be a hinged lid on top of the storage bin to add material to the bin, and a spring loaded valve at the bottom to dispense material out of the bin.

Absorbent bins that are built into the fender and do not provide a means for sliding the bin out for loading and dispensing shall not be acceptable due to the difficulty in loading/unloading.

#### **FENDER STORAGE COMPARTMENTS - PAINTED DOORS**

The fender storage area(s) shall be enclosed by a hinged door fabricated from the same material as the primary body construction, and painted the primary body color.

Each door shall be tied into the compartment door ajar/do not move apparatus warning system.

Each fender storage compartment door will be equipped with 3M model #1333 rubber "D" style door seal.

There will be no exceptions.

#### **LONG PUMPER BODY (ACCOMMODATES UP TO 1500 GALLON TANK**

##### **LONG - DS FULL HEIGHT/SPLIT DEPTH**

One full height/split depth compartment shall be provided forward of the rear wheels. The compartment dimensions shall be 49" wide x 68" tall and split depth. The compartment will be full depth in the lower 30" tall area, and split depth in the upper 38" tall area.

One high sided compartment shall be provided above the rear wheels. The compartment dimensions shall be 64" wide x 35-5/8" high and split depth.

One full height/split depth compartment shall be provided behind the rear wheels. The compartment dimensions shall be 56" wide x 68" tall and split depth. The compartment will be full depth in the lower 30" tall area and split depth in the upper 38" tall area.

##### **LONG - OS FULL HEIGHT/FULL DEPTH**

One full height/full depth compartment shall be provided forward of the rear wheels. The compartment dimensions shall be 49" wide x 68" tall.

One high sided compartment shall be provided above the rear wheels. The compartment dimensions shall be 64" wide x 35-5/8" high.



One full height/full depth compartment shall be provided behind the rear wheels. The compartment dimensions shall be 56" wide x 68" tall.

All compartments will be full depth.

#### **REAR STEP COMPARTMENT - FULL WIDTH, STANDARD HEIGHT**

An equipment storage compartment shall be provided on the rear of the body, located at the rear step area.

The rear step compartment shall be 42" wide x 40" high x 29" deep.

The rear step compartment shall provide approximately 28 cubic feet of storage space.

#### **REAR STEP COMPARTMENT - OPEN THROUGH SIDE WALLS**

The rear step compartment shall be designed to have an open storage space leading to the side body compartments.

This open storage area shall be in the lower section of the side body compartments only.

#### **REAR STEP COMPARTMENT - ROLLUP DOOR**

The rear step compartment shall be equipped with a roll up style door.

#### **REAR BODY DOOR FINISH - SATIN**

The rear body door shall have a satin finish.

#### **ROLL-UP DOORS**

Roll-up doors shall be provided on all compartments.

The roll-up doors shall be constructed from aluminum extruded slats which shall have a flexible seal between each slat for proper sealing of the door.

A synthetic rubber seal shall be provided at each side, top and bottom edge of the door to prevent entry of dirt into the compartment.

The door shall be equipped with a lift bar style latch mechanism which shall latch at the bottom of the door mounting extrusion.

The roll-up door assembly shall be furnished with a spring-loaded, counter balance assembly to assist in door actuation.

All running board and high side compartments shall be equipped with roll-up doors.

#### **AMDOR BRAND ROLL-UP DOORS, SATIN**

The roll-up doors shall be Amdor brand roll-up doors. They should be equipped with a satin finish and a dual durometer slat seal. The slats shall be made from a 1" double-wall aluminum and have a continuous ball and socket hinge joint. The interior of the door shall be made of a smooth interior door curtain,





preventing equipment hang-ups. The bottom panel flange shall have a stainless steel lift bar latching system. The lifting bar will have a cut out for easy access if using gloves.

**PULL DOWN STRAPS FOR SPECIFIC LOCATION: - L1, L2, L3, R1, R2, R3**

**PULL DOWN STRAPS FOR ROLL-UP DOORS**

Pull straps shall be provided for all roll-up doors.

**REAR COMPARTMENT DOOR MANUFACTURER - AMDOR**

The rear compartment door brand shall be Amdor.

**29" WIDE COFFIN COMP'TS, FULL DEPTH 100" BODY, DRIVER SIDE**

Roof hatch style compartments shall be provided the full length of the body, on the driver's side of the body hose bed area and shall be designed as an integral extension of the lower side compartments with a painted exterior finish. Drain tubes shall be provided at each end of each side compartment which shall extend down through the lower compartments.

Each side roof compartment shall extend the length of the body, which shall be evenly divided into three (3) individually accessed areas, which shall be open through from the front to the rear. The compartment depth shall extend from the ceiling area of the upper side compartments to the top of the body. The interior compartment width of each side roof compartment shall be a minimum of 28-1/2" inside width with a 25" wide access door at the top.

Each roof compartment shall be equipped with an overlapping, hinged lift up tread plate door. These doors shall be constructed of 3/16" tread plate with a 15 degree break on all sides. Each door shall have two (2) gas shock style stay open devices which shall also retain the door in the closed position. Protective panels shall be applied inside the compartments to cover any exposed wiring or recessed side body lighting, provided on the unit. These panels shall reduce the overall usable compartment area in the compartments.

**29" WIDE COFFIN COMP'TS, FULL DEPTH 100" BODY, OFFICER SIDE**

Roof hatch style compartments shall be provided the full length of the body, on the officer's side of the body hose bed area and shall be designed as an integral extension of the lower side compartments with a painted exterior finish. Drain tubes shall be provided at each end of each side compartment which shall extend down through the lower compartments.

Each side roof compartment shall extend the length of the body, which shall be evenly divided into three (3) individually accessed areas, which shall be open through from the front to the rear. The compartment depth shall extend from the ceiling area of the upper side compartments to the top of the body. The interior compartment width of each side roof compartment shall be a minimum of 28-1/2" inside width with a 25" wide access door at the top.

Each roof compartment shall be equipped with an overlapping, hinged lift up tread plate door. These doors shall be constructed of 3/16" tread plate with a 15 degree break on all sides. Each door shall have two (2) gas shock style stay open devices which shall also retain the door in the closed position. Protective panels shall be applied inside the compartments to cover any exposed wiring or recessed side body lighting, provided on the unit. These panels shall reduce the overall usable compartment area in the compartments.



### **COMPARTMENT TOPS**

Compartment ceilings shall be a fully welded design as part of the body construction process.

### **REAR BODY PANEL**

The rear body panel shall extend the full width between the body side compartments.

This panel shall be full height from the rear step to the hose bed floor.

No part of the rear panel shall be attached to the booster tank.

The rear body panel material shall be tread plate as standard.

If Chevron striping is specified for the rear of the body then smooth aluminum shall be utilized.

### **VINYL COMPARTMENT DOOR SILL PROTECTOR**

Door sill protectors shall be provided and installed on all high side body compartments.

The flaps shall extend 20" from the door opening when unrolled.

The door sill protectors shall be constructed of 22 ounce; heavy-duty vinyl coated polyester fabric (TXN 226).

### **BLACK VINYL SILL PROTECTOR**

The door sill protectors shall be black in color and shall be provided at the following compartment door openings:

### **TREAD PLATE OVERLAY, FRONT OF SIDE COMP'TS**

The front face of the side compartments, next to the driver and officer pump panels shall be overlaid with full height tread plate protection panels.

The overlays shall cover the front face of the compartments only, they shall not wrap around to the door opening.

### **BODY RUB RAILS, C-CHANNEL - BRUSHED STAINLESS**

Sacrificial brushed stainless steel C-Channel style, rub rails shall be mounted at the base of the body, extending outward from the body. The rub rails shall extend the full length of the main body. Rub rails shall be bolted to the body from the bottom side of the compartment area so it does not damage the body side panels on initial impact and provide easy replacement.

### **WHEEL WELL LINERS W/ FENDERETTE**

Fully removable, one piece, bolt-in, aluminum rear wheel well liner and fenderette will be provided. The wheel well liners will be natural metal finish and will protect the front and rear compartments and the main body supports from damage. Wheel well liners and fenderettes which are welded in place or are only partially removable shall not be considered.



### **REAR MUD FLAPS**

Heavy duty mud flaps shall be provided behind the rear wheels.

### **WINCH RECEIVER POINT - EACH SIDE OF BODY**

A 2" square receiver/hitch point shall be provided beneath the rub rail toward each side of the body for a portable winch.

The receiver/hitch point shall be a 2 1/2" x 2 1/2" x 1/4" full width of body seamless steel tube welded and gusseted to 3" x 1 1/2" steel channel directly bolted to four points on the chassis frame rails. The receiver/hitch shall have a minimum capacity of 6000 pounds.

A 12V electrical connection with a quick disconnect compatible with the portable winch shall be provided adjacent to the receiver/hitch point.

A plastic end cap shall be provided for the quick disconnect.

### **EXTENDED REAR STEP - 12 D X 100 W - SQUARED OFF**

The extended rear step shall be 12" deep and extends beyond the body compartments. The step shall have square corners, measuring 100" wide. The step shall be fabricated from 3/16" tread plate and be rigidly reinforced. The rear edge of the step shall be designed to accommodate the rear clearance lights. The steps recessed for the step reinforcement channel will help aid in protection. The step shall be bolted into place with a minimum 1/2" clearance gap between the step and rear body panel.

### **TERMINATE OS ROOF COMPT 18" FROM REAR OF BODY**

To provide a safe egress to the top of the body, the officer side rear roof compartment shall terminate 18" forward of the rear of the body. This recessed pocket shall allow a stepping surface at the top of the roof access ladder. The floor and outboard wall of the recess shall be overlaid with 1/8" tread plate.

If the stepping surface from the floor to the top of the coffin box is over 18 inches, a folding step will shall be installed.

A step light shall be provided to illuminate the stepping surfaces of this area.

NFPA compliant grab rails shall be provided where needed.

### **ZICO ROOF ACCESS LADDER**

A Zico RL-2-6 Quic-Ladder, swing out down vehicle ladder shall be provided on the rear body corner of choice. The ladder shall store parallel to the body. A spring loaded locking handle shall keep the ladder stored to the body. Releasing the lock shall allow the ladder to pull out to allow for climbing at a comfortable and safe angle. The ladder shall automatically latch and will not retract until the scissor lock is raised.

The standard configuration has a two-rung fold-down section and a six-rung main ladder section. All rungs are cast aluminum with a flat nonskid surface for traction and safety. Handrails shall be 1 1/4" heavy walled aluminum tubing, covered between rungs by a ribbed black neoprene tubing, which provides a firm gripping surface.



### **ROOF ACCESS LADDER LOCATION OFFICER SIDE REAR BODY**

The roof access ladder will be located on the officer's side rear body sheet.

### **GRAB RAILS, HANSEN KNURLED STAINLESS STEEL TYPE**

All hand rails shall be Hansen 1-1/4" outer diameter, knurled stainless steel, designed to meet NFPA 1901 requirements.

Molded gaskets shall be installed between the handrail stanchion castings and body surfaces to prevent electrolytic reaction between dissimilar metals and to protect paint.

Grab rails shall be provided at the following specified locations.

Additional grab rails shall be provided adjacent to any additional steps specified to comply with NFPA 1901.

### **TWO (2) VERTICAL RAILS ON REAR**

Two (2) vertical rails shall be mounted on the rear edge of the beavertails, one (1) each side.

### **ONE (1) HANDRAIL, BELOW HOSE BED LEVEL**

One (1) horizontal, full width handrail shall be installed on the rear, below the level of the hose bed.

### **INNOVATIVE CONTROLS LIGHTED STEP(S), BODY FRONT, DS**

Innovative Controls large lighted folding step(s), with a textured chrome plate finish, shall be provided on driver side body front to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

### **INNOVATIVE CONTROLS LIGHTED STEP(S), BODY FRONT, OS**

Innovative Controls large lighted folding step(s), with a textured chrome plate finish, shall be provided on officer side body front to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

### **INNOVATIVE CONTROLS LIGHTED FOLDING STEP(S), BODY REAR DS**

Innovative Controls large lighted folding step(s), with a textured chrome plate finish, shall be provided on driver side body rear to provide NFPA compliant access (maximum 18" height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

### **NO FOLDING STEP(S), BODY REAR, OS**

No folding steps shall be provided in this location.



### **PAINTED REAR TOW EYES, BELOW BODY**

Two (2) painted tow eyes shall be furnished on the rear of the vehicle. The tow eyes shall be made from plate steel and shall be bolted directly to the chassis frame rails with grade 8 bolts. The tow eyes will extend below the body. The tow eyes shall be smooth and free from sharp edges. They will have a minimum eyelet hole of 2-1/2". The tow eyes shall be painted.

### **WINCH RECEIVER POINT - REAR OF BODY**

A 2" square receiver/hitch point shall be provided below the rear of the body for a portable winch.

The receiver/hitch point shall be a 2 1/2" x 2 1/2" x 1/4" seamless steel tube welded and gusseted to 3" x 1 1/2" steel channel directly bolted to four points on the chassis frame rails. The receiver/hitch shall have a capacity of a minimum of 6000 pounds.

A 12V electrical connection with a quick disconnect compatible with the portable winch shall be provided adjacent to the receiver/hitch point.

A plastic end cap shall be provided for the quick disconnect.

### **STANDARD BED - FULL WIDTH COFFINS ON EACH SIDE**

The hose bed shall be located directly above the booster tank and be free from all sharp objects such as bolts, nuts, and so on, in avoidance of damage to a fire hose. The hose bed side walls shall be formed by the inner wall of the coffin compartments on each side. The front wall shall be flanged inward 2" with a 1" downward return, providing additional rigidity to the front wall.

### **CUSTOMER SPECIFIED HOSEBED CAPACITY - 2000' 4" AND 250' OF 2.5"**

The hose bed shall be designed with enough storage capacity to carry the following customer specified hose load: Feet of 5" supply hose, Feet of 3" supply hose, and Feet of 2-1/2" attack hose.

### **HOSEBED FLOORING - ALUMINUM SLATS**

Flooring is to be constructed from extruded aluminum and have proper spaces for ventilation purposes. The flooring shall be smooth and free from sharp edges to avoid any hose damage. The hose bed floor shall be removable, providing access to the inner body framework.

### **TWO (2) - 1/4" ADJUSTABLE HOSEBED PARTITIONS**

Two (2) fully adjustable 1/4" aluminum hose bed partitions shall be provided. The partition shall be easily adjustable by channels, located at the front and rear of the hose bed. The partition shall be removable for access to the booster tank.

### **HOSEBED COVER - VINYL WITH CONTINUOUS BUNGEE**

A hose bed cover shall be provided and installed. The cover shall be made from heavy-duty, vinyl coated polyester fabric. The cover shall be sewn with ultraviolet resistant thread and have 2" wide nylon webbing sewn around the perimeter to provide additional strength. The cover shall be secured to the top front body flange with quarter-turn fasteners and Velcro. The top side body flanges should be secured with a continuous bungee loop. A weighted flap shall be furnished on the rear of the cover with two (2) bungee cords.



### **VINYL MATERIAL COLOR - BLACK**

The vinyl material shall be black in color.

### **SIDE OF WATER TANK LADDER STORAGE**

The ground ladders shall be stored vertically next to the water tank, behind the side body compartments. They will be located on the driver side of the apparatus. A hinged access door shall be provided on the enclosure that ties into the "Do Not Move Apparatus" warning system.

### **LADDER ACCESS DOOR SCUFF PLATE**

The ladder access door shall have an aluminum diamond plate panel on the inner surface of the door.

### **ALCO-LITE PEL-24 24' 2-SECTION EXTENSION LADDER**

Alco-Lite model PEL-24; 24', aluminum, two (2) section extension ladder shall be provided.

### **ALCO-LITE PRL-14 14' ROOF LADDER W/FOLDING HOOKS**

Alco-Lite model PRL-14; 14', aluminum, straight roof ladder with folding hooks shall be provided.

### **ALCO-LITE FL-10 10' FOLDING ATTIC LADDER**

Alco-Lite model FL-10; 10', folding, aluminum, attic ladder shall be provided.

### **PIKE POLE TUBE(S) - PUMPERS**

A pike pole tube(s) shall be provided.

Each holder shall be accessible from the rear of the apparatus.

Each pike pole holder shall be labeled to indicate the pike pole length.

### **LOCATION PIKE POLE TUBE(S) - IN LADDER STORAGE COMPARTMENT**

The pike pole tube(s) shall be mounted in the ladder storage compartment.

### **SUCTION HOSE STORAGE BUILT INTO BODY (BEHIND ROLLUP)**

The suction hoses shall be located beneath the hose bed. There will be one (1) on the driver side and one (1) on the officer side. The hose storage area shall be accessed from the rear of the apparatus.

Note: On bodies with roll up style doors, the storage area shall be behind the roll of the door and will not affect usable compartment space. On bodies with hinged style doors, the storage area shall be in the top corner of the compartment.

A vertically hinged smooth aluminum, finish painted to match the body, access door with thumb type latches, shall be provided on the compartments. The door shall be provided with a door switch that ties into the "Do Not Move Apparatus" warning system.





**TWO (2) 10' SECTIONS OF 6" MAXI-FLEX LIGHTWEIGHT SUCTION**

Two (2) 10' sections of six (6) inch Maxi-Flex (PVC) suction hose with lightweight hard coat couplings shall be furnished. Couplings shall include a long handle with a female swivel on one end and a rocker lug male on the other. All threads shall be six (6) inch N.S.T.

**6" NST, RED HEAD BARREL STRAINER W/MTG BKT**

A 6" N.S.T., Red Head 140-60001 barrel type strainer(s) shall be provided and attached to the suction hose. A compartment mounting bracket shall also be provided to store the strainer(s) when not in use.

**1/2 DEPTH ADJUSTABLE SHELF DESCRIPTION - RESCUE**

Compartment shelving shall be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving shall be vertically adjustable with spring nuts in aluminum strut channel.

Half depth adjustable shelves shall be located as indicated at each compartment description.

**1/2 DEPTH ADJUSTABLE SHELF(S) LOCATED L-1**

Located in the left side compartment #1

**ADJUSTABLE SHELF DESCRIPTION - RESCUE**

Compartment shelving shall be constructed of 3/16" brush finish aluminum with a 2" upward bend at front and rear, and side supports. Shelving shall be vertically adjustable with spring nuts in aluminum strut channel.

Adjustable shelves shall be located as indicated at each compartment description.

**ADJUSTABLE SHELF(S) LOCATED L-1**

Located in the left side compartment #1

**ADJUSTABLE SHELF(S) LOCATED L-2**

Located in the left side compartment #2

**ADJUSTABLE SHELF(S) LOCATED R-1**

Located in the right side compartment #1

**ADJUSTABLE SHELF(S) LOCATED R-1**

Located in the right side compartment #1

**ADJUSTABLE SHELF(S) LOCATED R-1**

Located in the right side compartment #1

**ADJUSTABLE SHELF(S) LOCATED R-2**

Located in the right side compartment #2



**ADJUSTABLE SHELF(S) LOCATED R-2**

Located in the right side compartment #2

**TRANSVERSE ADJUSTABLE SHELF DESCRIPTION**

Transverse compartment shelving shall consist of 3/16" brushed finish aluminum, with a 2" lip on all four (4) sides. The shelving shall be vertically adjustable by mounting in heavy duty aluminum Unistrut "C" channel tracking material, securely fastened to the transverse compartment walls. Transverse adjustable shelving shall be as indicated at each compartment description.

**TRANSVERSE ADJUST SHELF LOCATED, L-3/R-3**

Located in the left/right compartment #3

**TRANSVERSE ADJUST SHELF LOCATED, L-3/R-3**

Located in the left/right compartment #3

**600# SM 1/2 DEPTH FLOOR MOUNTED, ROLLOUT TRAY**

Half depth floor mounted roll-out trays shall consist of heavy duty, roller bearing slide tracks with a load rating of 600 pounds, securely fastened to the compartment floor. The slide shall have a pull type latch to secure the slide in the desired position. The slide tracks shall have a 100% extension.

The tray shall be fabricated from 3/16" brushed aluminum with a minimum 2" high flange on each of the four sides to assist in retaining the equipment stored on each tray.

The 600 pound, half depth, floor mounted roll out trays shall be as indicated at each compartment description.

**600# SM 1/2 DEPTH ROLLOUT TRAY, LOCATED REAR COMP.**

Located in the rear compartment

**600#, FLOOR MOUNTED, ROLLOUT TRAY DESC. 100%**

Floor mounted roll-out trays shall consist of heavy duty, roller bearing slide tracks with a load rating of 600 pounds, securely fastened to the compartment floor. The slide shall have a pull type latch to secure the slide in the desired position. The slide tracks shall have a 100% extension.

The tray shall be fabricated from 3/16" brushed aluminum with a minimum 2" high flange on each of the four sides to assist in retaining the equipment stored on each tray.

The 600 pound floor mounted roll out trays shall be as indicated at each compartment description.

**TRAFFIC CONE HOLDER**

A stainless steel swing out traffic cone holder shall be provided on the right side of the tailboard to allow for the storage of at least 8 (TC-51B) traffic cones.



**600# SLIDEMASTER ROLLOUT TRAY, LOCATED L-3 - 100%**

Located in the left side compartment #3

**600# SLIDEMASTER ROLLOUT TRAY, LOCATED R-1 - 100%**

Located in the right side compartment #1

**600# SLIDEMASTER ROLLOUT TRAY, LOCATED R-3 - 100%**

Located in the right side compartment #3

**MARINE GRADE 3/4" PLYWOOD ON REAR WALL OF SPECIFIED COMPARTMENTS**

Marine grade 3/4" plywood shall be provided on the rear wall of the specified compartment(s) for mounting of loose equipment. The plywood shall be 3/4" marine grade plywood that shall be custom cut for the specified compartment. Each piece of plywood shall be varnished on both sides for protection. Plywood material shall be located in the following compartment(s):

**TURTLE TILE MATERIAL ON ALL COMPARTMENT FLOOR**

Turtle Tile brand floor material shall be installed on all compartment floors.

The Turtle Tile shall be custom installed to provide full floor coverage.

**FLOORING MATERIAL ON SHELF(S) OR TRAYS**

Floor matting material shall be provided on the noted quantity of specified shelves or roll-out trays.

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**FLOORING MATERIAL COLOR (BLACK IS DEFAULT)**

The compartment flooring color shall be black.

**VERTICAL PULL OUT TOOL BOARD, 3/4" PLYWOOD, #250**

**VERTICAL PULL OUT TOOL BOARDS**

Vertical pull out tool boards shall be provided. Each tool board shall be 3/4" marine grade plywood, coated with a clear polyurethane allowing mounting of equipment on both sides of the tool board. Each tool board shall be attached to #250 rated slides, one at the top and one at the bottom of the tool board. 3/16" aluminum angles shall attach the slides to tracking to allow horizontal adjustments. A gas shock shall be used to secure each tool board in the stored and deployed position. Vertical pull out tool boards shall be as indicated at each compartment description.

**VERTICAL PULL OUT TOOL BOARD(S) LOCATED L-2**

Vertical Pull Out Tool Board(S) Located L-2

**RESPOND READY TOOL BOX**

A custom Respond Ready cabinet will be added to a specified body compartment mounted on the floor. The cabinet shall be approximately 30 inches wide, 20 inches tall and full depth. The cabinet will be divided into six storage areas with each area being approximately 10 inches high x 16 inches wide. The drawers will be locking.



## **GENERAL PAINT DESCRIPTION**

The apparatus body shall be painted with Sikkens paint product. 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 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 the material 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.

## **GENERAL PRIMER & PREP DESCRIPTION**

All exposed welds shall be ground smooth for final finishing of areas to be painted.

The compartments and doors are totally degreased and phosphatized.

After final body work is completed, grinding (36 and 80 grit), and finish sanding shall be used in preparation for priming.

## **GENERAL FINISH PAINT DESCRIPTION**

The body shall be finish sanded and prepared for final paint.

Upon completion of final preparation, the body shall be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint.



Finish paint shall be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

**INTL 4-DR TWO TONE AS APPROVED BY CHASSIS MFG. - PPG - 2185 WHITE (CAB UPPER)**

The commercial cab exterior shall be finish painted in a two-tone color scheme by the chassis manufacturer with Purchaser's choice of colors as listed:

PPG 71528  
PPG 2185  
PPG 8000  
PPG 73841  
PPG 71663  
PPG 83841  
PPG 71969  
PPG 71660  
PPG 75481  
PPG 71698  
BLACK

**COMMERCIAL CAB PAINT FINISH**

The chassis shall be painted and detailed as provided from the chassis OEM and shall meet their quality guidelines.

**WHEEL AND HUB PAINT**

The chassis wheels shall be painted as provided by the commercial chassis manufacturer.

**BODY BUFFING & FINISH**

The visible and exposed areas of the body shall be buffed and detailed.

**INSIDE/UNDERSIDE BODY PAINT**

The inside and underside areas of the complete body assembly shall be painted black using a Sikkens paint system, prior to the installation of the body on the chassis or torque box.

**COMPARTMENT INTERIOR FINISH**

The interior of the compartments shall be finish painted with Multispec #7247 White Marble Stone scuff resistant paint to provide a protective application over all of the compartment interior surfaces.

**FENDER COMPARTMENT INTERIOR**

The interior of the fender storage compartments (if fender compartments are specified) shall be finish painted job color.

**PUMPHOUSE & PLUMBING PAINT**

The pump enclosure and pump/plumbing within the pump enclosure shall be painted black.



### **SINGLE COLOR BODY PAINT SCHEME - PPG - 47010 YELLOW (CAB LOWER/BODY)**

The body paint finish shall be Sikkens paint system in a single color to match customer furnished paint codes and requirements.

### **PINT OF TOUCH-UP PAINT**

One (1) pint of each exterior color paint for touch-up purposes shall be supplied when the apparatus is delivered to the end user.

### **FINALIZATION & DETAILING**

Prior to delivery the vehicle, the interior and exterior be cleaned and detailed.

The finalization process detailing shall include installation of NFPA required labels, checking fluid levels, sealing and caulking required areas of the cab and body, rust proofing, paint touch-up, etc

### **SCOTCH-LITE STRIPE**

A four (4) inch high "Scotch-Lite" stripe shall be provided.

The stripe shall be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit.

The Scotch-Lite stripe layout shall be determined by the Fire Department.

### **WHITE SCOTCH-LITE**

The Scotch-Lite shall be white in color.

### **4" SCOTCH-LITE "Z" IN STRIPE**

A four (4) inch simple "Z" effect shall be incorporated into the Scotch-Lite scheme on the body.

Final layout of this configuration shall be determined by the Fire Department.

### **REAR CHEVRON STRIPING**

REAR CHEVRON STRIPING

### **50% VERTICAL SURFACE**

At least 50% of the rear facing vertical surface shall be covered with alternating strips of reflective striping.

### **RUBY RED & LEMON YELLOW SCOTCH-LITE**

The Scotch-Lite shall be Ruby Red and Lemon Yellow in color.





### **MISCELLANEOUS EQUIPMENT**

The following equipment shall be mounted as specified or as loose equipment provided with the completed apparatus at the time of delivery:

### **ROAD SAFETY KITS**

A road safety kit shall be furnished with the following equipment:

- 2 1/2 lb. B-C fire extinguisher
- Triangle safety reflectors.

### **WHEEL CHOCKS**

Two (2) Zico model #AC-32 non-folding wheel chocks shall be provided and mounted as directed by the fire department.

### **GENERAL ONE (1) YEAR WARRANTY**

Purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0001. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **ELECTRICAL ONE (1) YEAR WARRANTY**

Purchaser shall receive a Electrical One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **BODY STRUCTURE (STAINLESS) FIFTEEN (15) YEAR WARRANTY**

Purchaser shall receive a Body Structure (Stainless) Fifteen (15) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0523. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **PAINT AND FINISH (EXTERIOR CLEAR COATED) WARRANTY**

Purchaser shall receive a Paint and Finish (Exterior Clear coated) Non-Prorated Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0711. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **PLUMBING AND PIPING (STAINLESS STEEL) WARRANTY**

Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

### **5 YEAR LETTERING WARRANTY**

The apparatus manufacturer will provide a five (5) year warranty against defects in material and workmanship for all graphics processes. Any valid claims must be made in writing within 15 days of the



determination of any defects to the manufacturer's fire apparatus. The manufacturer will at its option make any necessary repairs either at a local authorized service center or at the factory if required. The manufacturer will make the final decision as to where the repairs are to be made and any transportation cost is the owner's responsibility. The manufacturer will at its option, repair or replace any verified defects in workmanship or materials at no cost to the owner provided all the requirements of this warranty have been met.

The manufacturer will not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, downtime, loss of use or inconvenience. THE COMPANY MAKES NO OTHER WARRANTY, EXPRESSED OF IMPLIED, AND SPECIFICALLY, DISCLAIMS ANY IMPLIED WARRANTY INCLUDING THE WARRANTY OF MERCHANTABILITY.

The manufacturer continually strives to improve its products and therefore, reserves the right to make improvements or changes without incurring any obligations to make such changes or additions to equipment previously sold.

### **1 YEAR BRIGHTWORK WARRANTY**

KME Fire Apparatus (KME) warrants all bright finish components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of one (1) year from the date of delivery/acceptance to the original user-purchaser, whichever occurs first.

The expressed warranty excludes corrosion or degradation of bright finished components caused by damage to the component.

### **LIFETIME POLY TANK WARRANTY - ALL TANKS**

The proposed water tank will be warranted by the water tank manufacturer for the "Lifetime" of the unit. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.

### **HALE FIRE PUMP WARRANTY FULL 5 YEAR LABOR**

Hale Products, Incorporated ("Hale") hereby warrants to the original buyer that products manufactured by Hale shall be free of defects in material and workmanship for a period of five (5) years from the date product is first placed into service or five and one-half (5 1/2) years from date of shipment by Hale, whichever period shall be first to expire. Within this warranty, Hale will cover parts and labor for the entire warranty period.

### **FOAM PRO 2000 SERIES STANDARD WARRANTY**

The liability of FoamPro under the foregoing warranty will be limited to the repair or replacement at FoamPro's option without charge for labor or materials of any parts upon return of the entire pump, system or other product or of the particular part to the FoamPro factory within the warranty period, at the sole expense of the purchaser, which part will upon examination appear to FoamPro's satisfaction to have been defective in material and workmanship.

### **CLASS 1 - PRODUCT WARRANTY**

Class 1 warrants that any equipment of our own manufacture (or manufactured for us pursuant to our specifications) found to have defects in material or workmanship during normal use and service, will be repaired or replaced (at our opinion) free of charge, provided that written notice of such defect is received by us within two (2) years, (three 3 years on liquid filled gauges) after initial shipment.



### **AKRON - 5 YEAR LIMITED WARRANTY**

The limited warranty set forth here against defective materials or workmanship for a period of five (5) years will be given by Akron Brass Co. with respect to Akron Brass Co. products purchased and used in the United States and Canada respectively. All Akron valves are warranted for 10 years.

### **AKRON HEAVY DUTY VALVE - 10 YEAR WARRANTY**

Akron Brass warrants Heavy Duty Swing-Out Valves for a period of ten (10) years after purchase against defects in material or workmanship. Akron Brass shall repair or replace any Heavy Duty Swing Out Valve which fails to satisfy this warranty.

### **CLASS 1 - ELECTRICAL PRODUCT WARRANTY**

Class 1 warrants that any equipment of our own manufacture (or manufactured for us pursuant to our specifications) found to have defects in material or workmanship during normal use and service, will be repaired or replaced (at our option) free of charge, provided that written notice of such defect is received by us within two years (three for liquid-filled gauges) after initial shipment.

All equipment requiring repair or replacement under this warranty will be returned prepaid to Class 1. Such returned equipment will be examined by us and, if found to be defective as a result of materials failure or workmanship, will be repaired or replaced at no charge.

### **CORROSION TREATMENT**

Upon apparatus completion, underside of the apparatus, from the pump enclosure-back, shall have anti corrosion film applied to help inhibit rust and the corrosion process. The semi-firm wax film shall be applied by air spray method. The film shall be applied as a minimum to the following areas: body substructure, underside of all body compartments, running board supports and rear step supports. No film shall be applied directly to the exhaust system or wheel wells.

NOTE: The film shall remain semi-firm to promote self-sealing. The film may leave a light tinted color to those areas treated.

### **ADDITIONAL ITEMS SHIPPED WITH VEHICLE**

- 1 - Bag of assorted stainless steel nuts and bolts

### **VEHICLE CLASS TIER 0**