

# City of Hillsboro Fire Department

Hillsboro, Illinois 62049

## **GENERAL INFORMATION**

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus shall be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

These specifications detail the proposal for general design criteria of cab and chassis components, aerial device (if applicable), fire pump and related components (if applicable), water tank (if applicable), fire body, electrical components, painting, and equipment.

All items of these proposal specifications will conform to the National Fire Protection Association Pamphlet No. 1901, latest edition.

The bidder must furnish satisfactory evidence of their ability to construct, supply service parts and technical assistance for the apparatus specified.

Bidders may bid exact specifications or like equipment with City approval.

## **COOPERATIVE PURCHASING**

The Manufacturer will 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 will be that any such agency must make and pursue contact, purchase order/contract, and all contractual remedies with the successful bidder. Such tag-ons will be done so that the original purchasing agency has no responsibility for performance by either the manufacturer or the agency using the contract.

## **GENERAL APPARATUS DESCRIPTION "MOBILE WATER SUPPLY"**

The unit shall be designed to conform fully to the "Mobile Water Supply Fire Apparatus" requirements as stated in the NFPA 1901 Standard (2009 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 7 Mobile Water Supply 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

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## **CAB SAFETY SIGNS**

The following safety signs shall be provided in the cab:

- A label displaying the maximum number of personnel the vehicle is designed to carry shall be visible to the driver.
- "Occupants must be seated and belted when apparatus is in motion" signs shall be visible from each seat.
- "Do Not Move Apparatus When Light Is On" sign adjacent to the warning light indicating a hazard if the apparatus is moved (as described in subsequent section).
- A label displaying the height, length, and GVWR of the vehicle shall be visible to driver.
- This label shall indicate that the fire department must revise the dimension if vehicle height changes while vehicle is in service.

## **CHASSIS DATA LABELS**

The following information shall be on labels affixed to the vehicle:

### Fluid Data

- Engine Oil
- Engine Coolant
- Chassis Transmission Fluid
- Pump Transmission Lubrication Fluid
- Pump Primer Fluid (if applicable)
- Drive Axle(s) Lubrication Fluid
- Air Conditioning Refrigerant
- Air Conditioning Lubrication Oil
- Power Steering Fluid
- Cab Tilt Mechanism Fluid
- Transfer Case Fluid (if applicable)
- Equipment Rack Fluid (if applicable)
- Air Compressor System Lubricant
- Generator System Lubricant (if applicable)
- Front Tire Cold Pressure
- Rear Tire Cold Pressure
- Aerial Hydraulic Fluid (if applicable)
- Maximum Tire Speed Rating

### Chassis Data

- Chassis Manufacturer
- Production Number
- Year Built
- Month Manufactured
- Vehicle Identification Number

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Manufacturers weight certification:

- Gross Vehicle (or Combination) Weight Rating (GVWR or GCWR)
- Gross Axle Weight Rating, Front
- Gross Axle Weight Rating, Rear

## **ROLLOVER STABILITY**

The apparatus shall meet the criteria defined in 4.13.1 for rollover stability as defined in the 2009 NFPA Standard for Automotive Fire Apparatus.

## **7400 6x4 Two Door**

BASE CHASSIS, Model 7400 SBA 6 X 4 with 215.0" Wheelbase, 147.9 CA", and 75.0" Axle to Frame

TOW HOOK, FRONT (2) Inside Rail, Frame Mounted

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 Outer "C" Channel, Heat Treated Alloy Steel (120,000 PSI Yield); 10.813" x 3.892" x 0.312"; (274.6mm x 98.9mm x 8.0mm); 480.0" (12192 mm) Maximum OAL

BUMPER, FRONT Full Width, Aerodynamic, Chrome Plated Steel; 0.189" Material Thickness

WHEELBASE RANGE 169" (495 cm) Through and Including 219" (670 cm)

AXLE, FRONT NON-DRIVING {Meritor MFS-18-133A} Wide Track, I-Beam Type, 18,000-lb Capacity

SPRINGS, FRONT AUXILIARY Rubber

SUSPENSION, FRONT, SPRING Multi leaf, Shackle Type; 18,000-lb Capacity; With Shock Absorbers and Maintenance Free Spring Pins with Rubber Bushings

BRAKE SYSTEM, AIR Dual System

Includes:

AIR COMPRESSOR AIR SUPPLY LINE Naturally Aspirated

BRAKE CHAMBERS, SPRING (4) Rear Parking

BRAKE LINES Color and Size Coded Nylon

DRAIN VALVE Twist-Type

DUST SHIELDS, FRONT BRAKE

DUST SHIELDS, REAR BRAKE

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

PARKING BRAKE CONTROL Yellow Knob, Located on Instrument Panel

SLACK ADJUSTERS, FRONT Automatic

SLACK ADJUSTERS, REAR Automatic

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SPRING BRAKE MODULATOR VALVE SR-7

DRAIN VALVE {Berg} Manual; With Pull Chain, for Air Tank

AIR BRAKE ABS (Bendix Anti lock System) Full Vehicle Wheel Control System (4 Channel)

AIR DRYER {Meritor-Wabco System Saver 1200} Mounted in Standard Location

BRAKES, FRONT, AIR CAM 16.5" x 6", Includes 24 Sq In Long Stroke Chambers

BRAKES, REAR, AIR CAM S-Cam; 16.5" x 7.0"; Includes 30/30 Long Stroke Brake Chambers  
Includes: Brake Chambers, Spring Inverted with All Walking Beam Type Suspensions

AIR COMPRESSOR {Bendix Tu-Flo 750} 16.5 CFM

STEERING COLUMN Tilting and Telescoping

STEERING WHEEL 2-Spoke, 18" Diam., Black

STEERING GEAR {Sheppard M-100/M-80} Dual Power

EXHAUST SYSTEM Single, Horizontal, Aftertreatment Device, Frame Mounted Right Side Back of Cab,  
Includes Horizontal Tailpipe

SWITCH, FOR EXHAUST 2 Position, Lighted and Latched, ON/OFF Type, Mounted in IP Inhibits Diesel  
Particulate Filter Regeneration as Long as Switch is in ON Position

ENGINE EXHAUST BRAKE, Electronically Activated

ELECTRICAL SYSTEM 12-Volt, Standard Equipment

Includes:

BATTERY BOX Steel with Fiberglass Cover; Mounted Right Side, Back of Cab

DATA LINK CONNECTOR For Vehicle Programming and Diagnostics In Cab

HAZARD SWITCH, Push On/Push Off, Located on Top of Steering Column Cover

HEADLIGHT DIMMER SWITCH Integral with Turn Signal Lever

HEADLIGHTS (2) Sealed Beam Halogen, 5" X 7" Rectangular, with Chrome Plated Bezels

JUMP START STUD Located on Positive Terminal of Outermost Battery

PARKING LIGHT Integral with Front Turn Signal

RUNNING LIGHT, Daytime, Included in Headlights

STARTER SWITCH Electric Key Operated

TURN SIGNAL SWITCH Self-Cancelling, With Lane Change Feature

TURN SIGNALS, FRONT Includes Reflectors and Auxiliary Side Turn Signals, Solid State  
Flashers; Flush Mounted

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

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HORN, ELECTRIC (2)

POWER SOURCE Cigar Type Receptacle without Plug and Cord

ALTERNATOR {Leece-Neville 14931PAH} Brush Type; 12 Volt 320 Amp. Capacity, Pad Mounted

BODY BUILDER WIRING Back of Cab at Left Frame; Includes Sealed Connectors for Tail/Amber Turn/Marker/ Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn

BATTERY SYSTEM {International} Maintenance-Free (3) 12-Volt 1950CCA Total

RADIO {International} AM/FM Stereo With CD Player, Weatherband, Clock, Auxiliary Input, Includes Multiple Coaxial Speakers

POWER SOURCE, TERMINAL TYPE 2-Post

HORN, AIR Black, Single Trumpet, Air Solenoid Operated, Mounted Behind Bumper on Right Rail

SWITCH, AIR HORN, PASSENGER Fire Truck Application; Switch Located in Instrument Panel Close to Passenger, Driver Also To Activate Switch at Steering Wheel

HEADLIGHTS Long Life Halogen; for Two Light System

SWITCH, BODY CIRCUITS, REAR for Bodybuilder; With 6 Switches in Instrument Panel (2-position switches); One Power Module, With 6 Channels, 20 Amp per Channel and 80 Amp Max Output, Switches Control the Power Modules Through Multiplex Wiring, Mounted at Rear of Frame

SOLENOID, AIR for Customer Use; Provides (1) Normally Closed Pilot Air Source, Approx. 4 CFM, Includes Switch in Cab; Air Available Only With Key in "Ignition" or "Accessory" Position; Air Will Exhaust with Key in "Off" Position

BATTERY DISCONNECT SWITCH (Joseph Pollack) for Cab Power Disconnect Switch; Cab Mounted, Lever Operated, Disconnects Power to PDC, Does Not Disconnect Charging Circuits

INDICATOR, LOW COOLANT LEVEL With Audible Alarm

STARTING MOTOR {Delco Remy 39MT} 12 Volt; Gear Reduced With Thermal Over-Crank Protection

INDICATOR, BATTERY ON WARNING Green Indicator Mounted on Left Side of Instrument Panel

CIRCUIT BREAKERS Manual-Reset (Main Panel) SAE Type III With Trip Indicators, Replaces All Fuses Except For 5-Amp Fuses

INSULATION UNDER HOOD for Sound Abatement

GRILLE Stationary, Chrome

INSULATION, SPLASH PANELS for Sound Abatement

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INTERNATIONAL LOGOS;Ship Loose for Installation after Customer Graphics

GRILLE EMBER SCREEN Mounted to Grille to Keep Hot Embers out of Engine Air Intake System

FRONT END Tilting, Fiberglass, With Three Piece Construction

PAINT SCHEMATIC, Red Body, White Top

PAINT TYPE Base Coat/Clear Coat, Premium Color

KEYS, ALL ALIKE Z-001

ENGINE, DIESEL {MaxxForce 9} EPA 10; 400 HP @ 2000 RPM; 950 lb-ft Torque @ 1200 RPM; 2200 RPM Governed Speed

Includes:

COLD STARTING EQUIPMENT Intake Manifold Electric Grid Heater With ECM Control

CRUISE CONTROL Electronic; Controls Integral to Steering Wheel

ENGINE OIL DRAIN PLUG, Magnetic

ENGINE SHUTDOWN Electric, Key Operated

FUEL WATER/SEPARATOR AND FUEL FILTER in a Single Assembly With Water In Fuel

Sensor, Engine Mounted

GOVERNOR, Electronic

OIL FILTER, ENGINE Spin-On Type

WET TYPE CYLINDER Sleeves

FAN DRIVE {Horton Drivemaster, Polar Extreme} Automatic On/Off Type Control, With Normally Closed Temperature Control Includes FAN Nylon

RADIATOR; Aluminum, Front to Back Cross Flow, Series System, 1663 Sq In Core With 885 Sq In Charge Air Cooler and 470 Sq In Down Flow LTR

Includes:

ANTI-FREEZE, Shell Red Rotella Extended Life Coolant

DEAERATION SYSTEM With Surge Tank

HOSE CLAMPS, Radiator Hoses, Gates Shrink Band Type, Thermoplastic Coolant Hose Clamps

RADIATOR HOSES, Premium Rubber

AIR CLEANER Single Element

THROTTLE, HAND CONTROL, Engine Speed Control for PTO, Electronic, Stationary Pre-Set, Two Speed Settings, Mounted on Steering Wheel

ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder

ENGINE WATER COOLER (Sendure) Auxiliary, For Use With Fire Trucks

EMISSION COMPLIANCE Engine Shutdown System Exempt Vehicles, Complies With California Clean Air Regulations

TRANSMISSION, AUTOMATIC {ALLISON 3000 EVS\_P} 4th Generation Controls, Close Ratio, 5-Speed; With Overdrive, Less Retarder

Includes:

SENSOR Oil Level

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PTO Provision

Transmission Magnet in Transmission Oil Pan

Transmission Fluid Filter Mounted on Transmission

OIL COOLER, AUTO TRANSMISSION {Modine} Water to Oil

TRANSMISSION SHIFT CONTROL {ALLISON} Push-Button Type

SHIFT CONTROL PARAMETERS Performance Programming Primary and Economy Programming  
Secondary

ALLISON SPARE INPUT/OUTPUT for Emergency Vehicle Series (EVS), 127/198 Includes J1939 Based  
Auto Neutral; Fire/Pumper, tank, Aerial/Ladder

AXLE, REAR, TANDEM {Dana Spicer D46-170HP/R46-170H} Single Reduction, 46,000-lb Capacity; With  
Lube Oil Pump and "R" Wheel Ends

SUSPENSION, REAR, TANDEM (Hendrickson HMX-460-54) Walking Beam Type 54" Axle Spacing,  
46,000 lb Capacity, With Rubber End Bushings, Transverse Torque Rods, Less Shock Absorbers

FUEL TANK Top Draw; D Style, Non Polished Aluminum, 50 U.S. Gal., 189 L Capacity, With Quick  
Connect Outlet, 16" Tank Depth, Mounted Left Side Under Cab

CAB Conventional

Includes:

ARM REST (2) Molded Plastic; One Each Door

CLEARANCE/MARKER LIGHTS (5) Flush Mounted

COAT HOOK Located on Rear Wall, Centered Above Rear Window

CUP HOLDRES, Two, Located in Lower Center of Instrument Panel

FLOOR COVERING Rubber, Black

GLASS, ALL WINDOWS Tinted

GRAB HANDLE, CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side

GRAB HANDLE, CAB INTERIOR (2) "B" Pillar Mounted, One Each Side

STEP (2) Two Steps Per Door

GRAB HANDLE, CAB INTERIOR (2) Safety Yellow

GAUGES: English With English Electronic Speedometer

Includes:

GAUGE CLUSTER, Engine Oil Pressure, Water Temperature, Fuel, Tachometer, Voltmeter,  
Washer Fluid Level

ODOMETER DISPLAY, Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout

WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery  
Voltage (Visual and Audible)

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

GAUGE, OIL TEMP, ALLISON TRAN

GAUGE, AIR CLEANER RESTRICTION {Filter-Minder} With Black Bezel Mounted in Instrument Panel

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IP CLUSTER DISPLAY On Board Diagnostics Display of Fault Codes in Gauge Cluster

SEAT, DRIVER {Seats Inc., Universal Series} 911, NFPA Compliant, Air Suspension, High Back Vinyl With Covered Back and International Logo on Headrest Includes 3-Point, Lap and Shoulder Belt

SEAT, PASSENGER {Seats Inc, Universal Series} 911, NFPA Compliant, Non Suspension, High Back for SCBA With 0 Degree Back Angle, Vinyl Covered Back With Adjusters and International Logo on Headrest Includes 3-Point Lap and Shoulder Belt

GRAB HANDLE (2) Chrome Towel Bar Type With Anti-slip Rubber Inserts, Mounted Left and Right

MIRRORS (2) {Lang Mekra} Styled; Rectangular, 7.09" x 15.75" & Intergral Convex Both Sides, 102" Inside Spacing, Breakaway Type, Heated Heads Thermostatically Controlled, Power Both Sides, Clearance Lights LED, Bright Finish Heads & Brackets

SEAT BELT All Red

INSTRUMENT PANEL Center Section, Flat Panel

AIR CONDITIONER {International Blend-Air} With Integral Heater & Defroster

Includes:

CLAMP, HEATER HOSE Mubea Constant Tension Clamps

FRESH AIR FILTER

HEATER HOSES Premium

REFRIGERANT Hydro fluorocarbon HFC-134A

CAB INTERIOR TRIM Premium

Includes:

"A" PILLAR COVER Molded Plastic

CAB INTERIOR TRIM PANELS Molded Plastic, Full Height; All Exposed Interior Sheet Metal is Covered Except the Back Panel When a Two Man or Full Width Bench Seat is Used

CAB SOUND INSULATION Dash and Engine Cover Insulators

CONSOLE, OVERHEAD Molded Plastic with Dual Storage Pockets, Retainer Nets, CB Radio Pocket, Speakers and Reading Lights

COURTESY LIGHT (2) Mounted In Front Map Pocket Left and Right Side

DOMELIGHT, CAB Rectangular, Door Activated, Timed Theater Dimming, Center Mounted, Integral to Console

DOOR TRIM PANELS with Cloth Insert on Bolster Driver and Passenger Doors

GAUGE, TEMPERATURE, AMBIENT Includes Compass Readout with Display in Dash

HEADLINER Soft Padded Cloth

INSTRUMENT PANEL TRIM Molded Plastic with Black Center Section

STORAGE POCKET, DOOR (2) Molded Plastic (Carpet Texture), Full-Length; Both Doors

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

CAB REAR SUSPENSION Air Bag Type

WHEELS, FRONT DISC; 22.5" Painted Steel, 2 Hand Hole, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 9.00 DC Rims; With Steel Hubs.

WHEEL SEALS, FRONT Oil Lubricated, Includes Wheel Bearings

WHEELS, REAR DUAL DISC: 22.5" Painted Steel, 2 Hand Hole, 10 Stud (285.75MM BC) Hub Piloted,

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Flanged Nut, Metric Mount 8.25 DC Rims with Steel Hubs

WHEEL SEALS, REAR Oil Lubricated, Includes Wheel Bearings

BDY INTG, REMOTE POWER MODULE Mounted Under Cab or On Battery Box; Up to 6 Outputs & 6 Inputs, Max. 20 amp. per Channel, Max. 80 amp. Total (Includes 1 Switch Pack With Latched Switches)

BDY INTG, I/O EXPANSION 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 (.5 Amp) relay drivers outputs are provided

TIRE, FRONT (2) 315/80R22.5 XZY-3 (MICHELIN) 486 rev/mile, load range L, 20 ply

TIRE, REAR (8) 11R22.5 XDE M/S (MICHELIN) 498 rev/mile, load range G, 14 ply

## **REAR AXLE TOP SPEED**

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.

## **SILICONE HEATER HOSES**

All hoses in the heating system shall be the silicone type with an inner tube of silicone, two (2) reinforcing layers of polyester and a silicone outer layer.

## **FIXED BUCKET SEAT**

A non suspension, fixed bucket seat, with integral headrest shall be installed in place of the two (2) man bench seat.

INT - CHASSIS FINANCE/FLOOR PLAN CHARGE (3%)

## **BUMPER**

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The front bumper shall be as provided by the chassis manufacturer.

## **WHEEL TRIM KITS**

Wheel trim kits consisting of chrome baby moon hubcaps and chrome lug nut covers shall be installed on the front and rear axles of the tandem axle chassis.

## **WHEEL INSERTS**

A set of six (6) stainless steel wheel inserts, including lug nut covers, shall be installed on the tandem rear axle chassis.

## **FUEL TANK TREAD PLATE**

The step type fuel tank shall be overlaid with polished aluminum tread plate. This shall include the top, front and both ends. Step areas shall be provided for access to the cab. Step areas shall be fabricated from Alcoa "No-Slip" tread plate.

## **BATTERY BOX TREAD PLATE**

The battery box shall be overlaid with polished aluminum tread plate. The cover of this box shall be easily removable for inspection of the batteries.

## **CENTER CONSOLE**

A center console fabricated from 1/8" aluminum shall be furnished and shall be located between the driver and officer's seats. The console shall be 21-1/2" high by 18" wide by 26" long.

The forward area of the console shall have a mounting surface for emergency lighting switch panels and/or electronic siren control boxes 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 shall be finished with a textured gray paint to match the interior color of the cab.

## **TIRE PRESSURE MONITORING DEVICES**

Each tire shall be equipped with an air pressure indicator cap on the valve stem. Each cap shall have a visual indicator to show if the tire is correctly inflated.

## **VEHICLE DATA & SEAT BELT RECORDER**

An IMMI Vehicle Data Recorder (VDR) and Seat Belt monitor system shall be provided. The system shall include an NFPA compliant "Black Box" with reporting software that shall be capable of data storage to coincide with the NFPA requirements.

Data storage capabilities shall include interfaces with the following systems:

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- Display module (Master Optical Warning Device)
- Seat belt monitoring (seat occupied with seat belt)
- Surface or panel mount
- VDR, date & time stamp
- Max Vehicle speed (MPH)
- Vehicle acceleration / deceleration (MPH/Sec.)
- Engine Speed (RPM)
- ABS event
- Data password protected
- Data sampled once per second, in 48-hour loop
- Data sampled min by min for 100 engine hours
- Throttle position (% of Throttle)
- Data software
- Data interface for data download
- PC / Mac Compatible
- Hours Driven
- Data summary reports
- Last Minute Log
- Idle Time
- Track inputs from RollTek (If Equipped)

**\*\*\*\*\* CHASSIS/BODY ELECTRICAL & ACCESSORIES \*\*\*\*\***

## **COMMERCIAL CHASSIS ELECTRICAL SYSTEM**

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.

## **12 VOLT ELECTRICAL SYSTEM TESTING**

The apparatus low voltage electrical system shall be tested and certified by the apparatus manufacture. The certification shall be provided with the apparatus. All tests shall be performed with 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.

### **TEST #1-RESERVE CAPACITY TEST**

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes.

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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.

## **TEST #2-ALTERNATOR PERFORMANCE TEST AT IDLE**

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

## **TEST #3-ALTERNATOR PERFORMANCE TEST AT FULL LOAD**

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 less than 11.7 volts DC for a 12 volt system, for more than 120 seconds, shall be considered a test failure.

## **LOW VOLTAGE ALARM TEST**

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 less than 11.7 volts shall be considered a test failure. The battery system shall then be able to restart the engine.

At 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.

## **INTERNATIONAL MULTIPLEXED ELECTRICAL SYSTEM**

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

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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.**

### **BATTERY DISCONNECT SWITCH**

The chassis batteries shall be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty, rotary type, master disconnect switch. The master disconnect switch shall be located within easy access of the driver upon entering or exiting the cab.

### **120 VOLT SHORELINE CONNECTION - "SUPER" AUTO EJECT WITH AIR COMPRESSOR FOR AIR BRAKES**

One (1) Kussmaul "Super" Auto Eject model 091-55-20-120, 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. A label shall be provided indicating voltage and amperage ratings.

### **SHORELINE POWER INLET PLATE**

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)

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

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The shoreline receptacle shall be located in the driver's cab step well.

## **BATTERY CHARGER SYSTEM**

A Kussmaul model # 091-170-12, "Auto Charge 12 HO" high output, fully automatic battery charger shall be provided for maintaining the vehicle battery system. Remote voltage sensing shall be provided to compensate the charger output for the voltage drop in the charging wires. Output current shall be 20 amperes @ 12 volt DC. A built-in ammeter shall be provided.

## **"DO NOT MOVE APPARATUS" WARNING LIGHT WITH AUDIBLE ALARM**

A red flashing warning light with an integral 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. This light shall be labeled "DO NOT MOVE TRUCK".

## **DOT 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.

Truck-Lite Model #19 red LED clearance lights shall be provided on the apparatus rear upper, one (1) each side at the outermost practical location.

Truck-Lite Model #33740R LED 3-lamp identification bar will be provided on the apparatus rear center. The lights shall be red in color.

Truck-Lite #98034Y yellow reflectors shall be provided on the apparatus body lower side, as far forward and low as practical, one (1) each side if the apparatus is 30' long or longer.

Truck-Lite #98034R red reflectors shall be provided on the apparatus rear, one (1) each side at the outermost practical location.

## **LICENSE PLATE LIGHT - REAR**

One (1) license plate light shall be provided above the mounting position of the license plate. The light shall be clear in color.

## **TAIL, STOP, TURN AND BACK-UP LIGHTS**

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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", white halogen 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.

## **BODY STEP LIGHTS**

Chrome plated Whelen model #0AC0EDCR, shielded LED body step lights shall be provided and controlled with marker light actuation. Step lights shall be located to properly illuminate all chassis access steps and walkway areas.

## **DUNNAGE AREA LIGHTING**

Two (2) chrome plated Whelen model #0AC0EDCR, shielded LED lights shall be provided in the dunnage area to provide adequate illumination of this area.

## **DECK LIGHTS / WORK LIGHTS**

Two (2) 6" Unity model AG chrome plated deck lights shall be provided and mounted on the rear stanchions, one (1) each side. Each individual deck light shall be controlled by an individual switch mounted on each light, as well as by a single master switch in the master warning switch console.

The deck lights shall also serve as rear work lights to illuminate the rear of the apparatus to meet NFPA-1901 requirements.

## **GROUND LIGHTS - CAB**

One (1) rubber mounted halogen ground light shall be provided under each side cab door entrance step, two (2) 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. The rear crew door ground lights shall be positioned at an angle rearward to provide illumination at the pump panel and the front of the body work areas.

\*\*\*\* **BODY ELECTRICAL SYSTEM** \*\*\*\*

## **12 VOLT BODY ELECTRICAL SYSTEM**

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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 1901.

## **BODY ELECTRICAL JUNCTION COMPARTMENT**

A weather resistant electric junction compartment shall be provided in the left side lower front compartment. This compartment shall be recessed through the inside rear wall of the compartment to provide an easily accessible enclosure to house all of the body wiring junction points, terminal strips, solenoids, etc. The design of this compartment shall not decrease the storage capacity area of the compartment in which it is located. A removable panel shall be provided for access to this compartment.

## **PUMP ENCLOSURE WORK LIGHTS**

Work lighting shall be provided inside the pump enclosure providing a minimum of 20 candlepower illumination.

## **ENGINE COMPARTMENT WORK LIGHTS**

Work lighting shall be provided inside the engine enclosure that will provide a minimum of 20 candlepower illumination.

## **COMPARTMENT LIGHTS - HALOGEN**

Each exterior compartment shall have one (1) Weldon halogen model #2630 white dome light. Each light shall come on automatically when the respective door is opened and the master battery switch is on.

## **NFPA LIGHTING PACKAGE**

The following warning light package shall include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1901 Fire Apparatus Standard. The lighting as specified shall meet the requirements for both "Clearing Right of Way" and "Blocking Right of Way" as noted.

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## **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.

## **UPPER LEVEL LIGHTING - WHELEN**

### **NFPA ZONE A, UPPER**

Whelen #JE2NFPA "Justice", 56" LED cab roof warning lightbar shall be furnished and rigidly mounted on top of the cab roof. The lightbar shall be equipped with the following:

- Four Corner Red Linear 6 LED's
- Four Red Forward Facing CON 3 LED's
- Two White Forward Facing CON 3 LED's

The forward facing clear LED flashers shall be disabled automatically for the "Blocking Right of Way" mode.

### **NFPA ZONE C, UPPER**

Two (2) Whelen RB6 series rotating halogen beacon lights shall be mounted one (1) each side at the rear of the body. An RB6TRP red light shall be provided on each side.

### **NFPA ZONES B & D REAR, UPPER**

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

### **NFPA ZONES B & D FRONT, UPPER**

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

## **LOWER LEVEL LIGHTING - WHELEN**

### **NFPA ZONE A, LOWER**

Two (2) Whelen #60R02FRR linear super LED light heads shall be provided and installed one (1) each side. Each light shall be equipped with a red lens and chrome plated mounting flange.

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The lower zone A warning lights shall be mounted in the commercial chassis grille.

## **NFPA ZONE C, LOWER**

Two (2) Whelen #60R02FRR linear LED light heads shall be provided and installed one (1) each side directly below the DOT stop, tail, turn and backup lights. Each light shall be equipped with a red lens and chrome plated mounting flange.

## **NFPA ZONES B & D FRONT, LOWER**

Two (2) Whelen #60R02FRR linear super LED light heads shall be provided and installed one (1) each side. Each light shall be equipped with a red lens and chrome plated mounting flange.

The lower zone B & D warning lights shall be mounted on the sides of the commercial chassis hood.

## **NFPA ZONES B & D MIDSHIP, LOWER**

Two (2) Whelen #60R02FRR linear super LED light heads shall be provided and installed one (1) each side. Each light shall be equipped with a red lens and chrome plated mounting flange.

## **NFPA ZONES B & D REAR, LOWER**

Two (2) Whelen #60R02FRR linear super LED light heads shall be provided and installed one (1) each side. Each light shall be equipped with a red lens and chrome plated mounting flange.

## **WARNING LIGHT SYSTEM 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" mode.

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 1901 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.

## **BACK-UP ALARM**

A Code 3, model #D450C, 87dBA 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".

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## **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.

One (1) Whelen, model # SA122FMP polished aluminum siren speakers shall be provided, recessed in the front bumper and wired to the electronic siren.

## **\*\*\*\* PUMP AND PLUMBING \*\*\*\***

### **PUMP**

- **HALE AP-50**
- **500 GPM**
- **SINGLE STAGE**
- **PTO DRIVEN**

A Hale model AP-50 PTO driven pump shall be provided and installed.

### **PUMP BODY**

The volute shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 pounds per square inch. The entire pump shall be hydro dynamically tested to 500 PSI.

The pump body shall have the capability of being rotated for various discharge positions.

### **PUMP SHAFT**

The pump shaft shall be rigidly supported by two deep groove ball bearings for minimum deflection. The pump shaft shall be heat-treated, electric furnace, corrosion resistant, stainless steel.

### **IMPELLER**

The pump impeller shall be hard, fine grain bronze of the mixed flow design: accurately machined, hand ground and individually balanced. The vanes of the impeller intake eye shall be hand ground. The impeller shall be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. Impeller shall be keyed to pump shaft and locked in place with a stainless steel lock nut.

### **MECHANICAL SHAFT SEAL**

Shaft seal to be sealed with a double lip oil seal to keep road dirt and water out of pump gearbox.

### **DRIVE UNIT**

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The drive unit, as well as the entire pump, shall be completely manufactured at the pump manufacturer's factory. The drive unit bearings shall be heavy duty and precision ground to size. The drive unit shall be of sufficient size to withstand the full torque of the pumping operation. The drive unit shall have ample capacity for lubrication reserve and maintaining the proper operating temperature.

All gears shall be of highest quality steel alloys. They shall have case hardened teeth, to give long life, smooth, quiet running and higher load carrying capability. An accurately cut spur design shall be provided to eliminate all possible end thrust.

## **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.

## **POWER TAKE OFF (PTO)**

A Chelsea hot shift Power Take Off shall be provided to drive the Hale Ap-50 pump. The PTO shall be controlled by an electric "Hot-Shift" lighted rocker switch on the cab dash.

## **PTO PUMP SHIFT INDICATOR LIGHTS**

Three (3) green warning lights shall be provided to indicate to the operator when the PTO has completed the shift for Road to Pump position. The PTO switch shall illuminate and a light located on the instrument panel. One (1) green light shall be provided on pump operator's panel adjacent to the throttle control. All lights to have appropriate identification/instruction plates.

## **PTO PUMP MOUNTS**

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 with the PTO, 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.

## **PUMP MANIFOLDS**

A custom made suction and discharge manifold shall be constructed from stainless steel weld pipe. The manifold shall be designed with sweep elbows to provide maximum efficiency for the suction inlets and the discharges. NO EXCEPTION!

\*\*\*\*\* **PRESSURE CONTROL & ACCESSORIES** \*\*\*\*\*

## **CLASS ONE "TPG" PRESSURE GOVERNOR**

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Apparatus shall be equipped with a Class 1 "Total Pressure Governor" (TPG) that is connected to the Electronic Control Module (ECM) mounted on the engine. The "TPG" shall operate as a pressure sensor (regulating) governor (PSG) utilizing the engines J1939 data for optimal resolution and response.

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

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

## **CLASS 1 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 285 psi and is factory preset at 125 psi. The relief valve shall be used on the inlet side of the pump or on a designated LDH discharge outlet. Available with Victaulic, MNPT or MNST discharge outlet.

## **PUMP CERTIFICATION**

The pump shall be third party performance tested to meet the requirements of NFPA-1901. To ensure top quality and integrity, the test company shall be Underwriter's Laboratories (UL). NO EXCEPTIONS!

## **PRIMING PUMP**

The priming pump will be a Trident air primer system. A push in primer handle will open the priming valve and prime the pump.

## **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.

## **INDIVIDUAL BLEEDERS AND DRAINS**

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

One (1) individual "TRIDENT" quarter turn 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.

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All drains and bleeders shall discharge below the running boards.

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

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.

## **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.

The pump module shall be a welded frame work utilizing structural steel components properly braced to withstand the rigors of chassis frame flex.

## **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" aluminum 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.

## **\*\*\*\*\* PUMP SUCTIONS & AUXILIARY INLETS \*\*\*\*\***

### **SUCTION INLETS**

Two (2) 4" 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.

### **PUMP SUCTION ENDS**

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.

One (1) 4" NST chrome plated long handle pressure vented cap shall be installed on each.

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## **AUXILIARY SIDE SUCTION(S)**

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

A 2 1/2" Akron #8800 series full flow, stainless steel ball valve shall be provided for the driver side rear auxiliary suction.

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

All side gated inlet valves shall be recess mounted behind the side pump panels or body panels.  
(No Exceptions)

## **TANK TO PUMP**

One (1) 3" 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.

A 3" Akron #8800 series full flow, stainless steel ball valve shall be provided between the pump suction manifold and the water tank.

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

## **TANK FILL**

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. (NO EXCEPTIONS)

A 2" Akron, #8800 series, full flow, stainless steel ball valve shall be provided between the pump discharge manifold and the water tank.

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

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## \*\*\*\*\* DISCHARGES & ACCESSORIES -SIDE MOUNT \*\*\*\*\*

### **DRIVER'S SIDE 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.

A 2 1/2" Akron, #8800 series, full flow, stainless steel ball valve shall be provided for the driver's side #1 discharge. The valve shall be equipped with the Akron "Tork-Lok" feature.

The discharge valve shall be equipped with integral 2 1/2" NST, 30 degree, chrome plated elbow.

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

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

The driver's side #1 discharge shall be equipped with a 2 ½ " diameter Noshok 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 a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40°F to +160°F.

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.

### **OFFICER'S SIDE 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.

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A 2 1/2" Akron, #8800 series, full flow, stainless steel ball valve shall be provided for the officer's side #1 discharge. The valve shall be equipped with the Akron "Tork-Lok" feature.

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.

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

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

The officer's side #1 discharge shall be equipped with a 2 ½ " diameter Noshok 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 a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40°F to +160°F.

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.

## **HORIZONTAL CROSSLAY #1**

A crosslay hose bed shall be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring shall be designed to be removable, constructed from brushed finish, perforated aluminum material.

Crosslay #1 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.

Crosslay #1 hosebed shall be designed to accommodate the fire hose in a double stack configuration.

The crosslay discharge shall terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter. The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

The crosslay #1 discharge shall be plumbed utilizing 2" schedule 40, galvanized piping and/or flexible hose, 45 degree threaded elbows and a limited number of 90 degree sweep elbows in an

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assembly from the pump to crosslay hosebed.

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

A 2" Akron, #8800 series, full flow, stainless steel ball valve shall be provided for the crosslay #1 discharge. The valve shall be equipped with the Akron "Tork-Lok" feature.

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

The crosslay #1 discharge shall be equipped with a 2 ½ " diameter Noshok 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 a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40°F to +160°F.

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.

### **HORIZONTAL CROSSLAY #2**

A crosslay hose bed shall be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring shall be designed to be removable, constructed from brushed finish, perforated aluminum material.

Crosslay #2 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.

Crosslay #2 hosebed shall be designed to accommodate the fire hose in a double stack configuration.

The crosslay discharge shall terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter. The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

The crosslay #2 discharge shall be plumbed utilizing 2" schedule 40, galvanized piping and/or flexible hose, 45 degree threaded elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hosebed.

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

A 2" Akron, #8800 series, full flow, stainless steel ball valve shall be provided for the crosslay #2 discharge. The valve shall be equipped with the Akron "Tork-Lok" feature.

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

The crosslay #2 discharge shall be equipped with a 2 ½ " diameter Noshok 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 a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from -40°F to +160°F.

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.

## **DEADLAY STORAGE AREA**

A deadlay storage area shall be provided on the top of the pump enclosure to accommodate 200 feet of 2-1/2" hose. The hose storage area shall have a floor of perforated aluminum material and the sides shall be lined with brushed aluminum material.

## **PUMP ENCLOSURE HOSEBED HOSE RETENTION**

A vinyl cross lay cover shall be provided. It shall be securely fastened at the front with snaps and Velcro at the rear, with straps to secure each end flap.

The crosslay cover shall be red in color.

## **\*\*\*\* PUMP PANEL & ACCESSORIES \*\*\*\***

### **PUMP PANEL - SIDE MOUNT**

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.

### **PUMP PANEL MATERIAL**

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The left side operator's panel, gauge panel, right side pump panel and right side access door shall be fabricated from 1/8" black vinyl clad aluminum with a grained finish.

## **HINGED GAUGE PANEL**

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.

## **VERTICALLY HINGED PUMP PANEL OFFICER SIDE**

The officer's side pump panel shall be vertically hinged to provide complete access to the pump and plumbing on the right side of the pump enclosure. The panel shall be equipped with a stainless steel hinge and secured with push type locks to hold the panel closed. The drains located on the officer's side panel shall be fastened to the lower 6" of the 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**

All applicable discharge and suction caps, plugs and adapters shall be equipped with chrome plated ball chain or double looped coil chain and secured to the vehicle.

## **PUMP PANEL TRIM PLATES**

A high polish stainless steel 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.

## **COLOR CODED IDENTIFICATION TAGS**

Color coded identification tags shall be provided for all gauges, controls, connections, switches, inlets and outlets.

## **PUMP OPERATOR'S PANEL LIGHT SHIELD**

The pump operators 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.

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The light shield shall be equipped with the following lights:

- Four (4) Weldon #2630 halogen 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.

## **OFFICER SIDE PANEL LIGHTING**

The officer's side pump panel and running board shall be illuminated by the following lights:

- Two (2) Weldon #9186 halogen shielded step lights

The lights shall be switched with the main pump panel lights.

## **PUMP OPERATOR'S PANEL**

Particular attention is to be given to functional arrangement of all controls. The pump operator's panel shall accommodate the following:

- Hinged gauge panel
- Water tank fill valve
- Auxiliary suction valve control
- All discharge valve controls
- Auxiliary engine cooler controls
- Water tank suction control valve
- Pump primer valve
- Engine throttle control
- Master compound vacuum gauge
- Master pressure gauge
- Individual discharge gauges
- Pump shift engaged indicator light
- Water tank water level indicator
- Engine tachometer
- Engine oil pressure gauge with audible alarm
- Engine water temperature gauge with audible alarm
- Low voltage light and audible alarm
- Pump panel light switch
- Speed counter (Underwriters)

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- Pump performance plate (Underwriters)
- Pump serial No. plate
- Master pump drain valve
- Individual drains
- Voltmeter
- Air inlet/outlet at lower driver side panel
- Class One "TPG" pressure governor control

## **PUMP TEST PORTS**

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.

## **MASTER GAUGES**

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, silicone filled. The gauge faces shall be white with black numerals.

## **PRESSURE & COMPOUND GAUGE RANGES**

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.

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

## **TANK LEVEL GAUGE**

An Innovative Controls model #3030385, Ultra-Bright LED water level monitor shall be provided on the pump operator's panel. The level gauge shall contain fourteen (14) high intensity LED's on the display in a "V" pattern allowing the full, 3/4, 1/2, 1/4 and refill levels to be easily distinguished at a glance. It shall be maintenance free and field adjustable.

The gauge shall use a pressure transducer installed near the bottom of the water tank to determine the correct volume in the tank.

## **WATER TANK**

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The tank shall have a capacity of 3000 U.S. gallons and shall be elliptical in shape. The tank shall be constructed from polypropylene material.

The tank and its integral support structure shall be manufactured from a copolymer ultra high impact polypropylene with physical properties equal to or greater than Amocos AccTuf 3045 resin. The fabrication shall be of a welded construction utilizing a nitrogen shielding gas for optimum weld consistency and purity. Exterior seams are to be extrusion welded for maximum strength and integrity.

The tank shall be self-supporting in design. The integral and internal supports must not contain any non-polymer material in their construction. The barrel shall be constructed with 3/8" sheet in a series of prefabricated sections utilizing one piece cell modules containing 3/4" and 1/2" thick partitions to form the tank. **NO EXCEPTIONS**. Each cell module shall contain one longitudinal and one transverse partition creating an NFPA compliant compartment type baffling system.

The Closed-Curve compartment type baffling system shall include primary transverse partitions and end walls that shall extend down to the bottom of the support sills. Channel shaped longitudinal sill supports shall be externally welded to the underside of the barrel and to the tank end walls as well as to the primary transverse partitions. This longitudinal sill shall be constructed from 3/4" polypropylene and shall be fully extrusion welded. Drain holes shall be provided at the ends of each section.

Provisions are to be incorporated for air and water to adequately pass through the Closed-Curve baffles to facilitate filling and evacuation requirements and shall be staggered in an efficient design to reduce water turbulence while in motion.

### **TANK LID**

The tank cover shall be constructed of 1/2" thick polypropylene, natural in color, and U.V. stabilized, to incorporate a multi three-piece design, which allows for individual removal and inspection if necessary. The tank cover shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" polypropylene dowels spaced a maximum of 30" apart. These dowels shall extend through the covers and become welded to the transverse partitions. This shall assist in keeping the cover rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped 1/2" X 13" to accommodate the lifting eyes.

### **TANK FILL TOWER**

A fill tower shall be located in the center of the tank, and shall have a minimum 6" vent/overflow pipe which is to be internal to the tank and shall terminate behind the vehicles rear most axle. The tower shall have an open area of no less than 500 square inches and must be at least 8" in height from the highest point on the elliptical barrel.

The fill tower lid shall be of a hinged type design and shall be hinged towards the front of the tank. The tank lid shall be retained using a rubber pull latch and sealed with a bulb-type EDPM gasket. A tether shall be provided to hold the tank lid in the open position.

### **OVERFLOW AND VENT PIPE**

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The fill tower shall be fitted with an integral 6" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to a 6" coupling flush mounted into the bottom of the tank to allow water to overflow behind the chassis rear axle.

## **TANK SUMP AND CONNECTION**

A sump shall be provided at the front underside of the tank along the tanks longitudinal centerline. This sump shall be fabricated from 1/2" PT2E copolymer polypropylene with a 3/4" PT2E floor. Provisions for a 3" NPTF clean-out port shall be provided in the floor of the sump. An anti-swirl device in the form of a horizontal plate shall be provided internally to avoid cavitation over the sump during rapid evacuation. A 3" NPTF tank-to-pump suction connection shall be provided in the forward wall of the sump.

A discharge sump shall be incorporated at the rear of the tank, which shall provide a mounting surface for a dump valve(s). This sump shall be fabricated from 3/4" PT2E polypropylene. The rear dump surface shall allow a round/square dump valve(s) to bolt to the tank. The bottom of the sump shall be at least 6" lower than the bottom of the elliptical tank floor.

## **TANK SUMP CONNECTION**

The front bulkhead of the water tank shall be fitted with one (1)

## **OUTLETS**

There shall be two (2) standard tank outlets; one for tank-to-pump suction line which shall be a minimum of 4" coupling and one for a tank fill line which shall be a minimum of a 2" N.P.T. coupling. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

## **TANK MOUNTING**

The tank shall be mounted to the truck chassis utilizing a structural tubular steel sub-frame, which shall provide a properly cushioned mounting surface for the tank. Captive mounting brackets adequately sized for the tank shall be provided to attach the tank to the sub-frame utilizing a cushioned isolator for positive and negative vertical retention. The sub-frame shall be bolted to brackets fastened to the side of the truck chassis. The front mounts are to be spring-loaded to allow for chassis flexing under extreme road conditions. There shall be a 1" polypropylene strip attached to the underside of the sub-frame to isolate the sub-frame from the chassis. The forward section of the strip shall have a double-tapered relief to eliminate point loading the frame rail.

## **TANK MODIFICATION FOR REAR SQUARE DUMP**

### **10" NEWTON STAINLESS STEEL DUMP WITH ELECTRIC ACTUATOR - REAR**

The rear of the water tank shall be equipped with a 10" Newton Stainless Steel Dump Valve, model #1070-34. The dump valve shall be electronically actuated. The dump valve setup shall be capable of discharging the water tank contents at a rate of at least 1800 G.P.M.

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## **NEWTON STAINLESS STEEL 18" ELECTRIC TELESCOPING CHUTE - REAR**

The rear Newton Dump shall be equipped with a Newton Model #5018-34, 18" electric telescoping, stainless steel dump chute.

## **REAR DUMP SWITCHING - DRIVER AND OFFICER SIDE**

The rear dump switching shall be installed on the driver and officer side of the rear body panel. The switches shall be toggle style switches installed in protective cast enclosures with hinged doors. A light shall be installed inside each enclosure to illuminate the switching area. These lights shall be activated whenever the vehicle marker lights are turned on.

## **REAR DUMP SWITCHING - IN CAB**

The rear dump shall be switched by a momentary style multiplexed switch from inside the cab. The switch shall be located in an area near the driver and shall be a backlit style switch.

The switch shall be interlocked with a master dump power switch located in the same switch console. The master dump power switch shall provide power to all dumps switching inside the cab. This setup is designed to prevent accidental activation of a dump from inside the cab.

## **REAR CHUTE SWITCHING - DRIVER AND OFFICER SIDE**

The rear chute switching shall be installed on the driver and officer side of the rear body panel, next to the dump switches. The switches shall be toggle style switches.

## **REAR CHUTE SWITCHING - IN CAB**

The rear chute shall be switched by a momentary style multiplexed switch from inside the cab. The switch shall be located adjacent to the respective dump switch.

The switch shall be interlocked with a master dump power switch located in the same switch console. The master dump power switch shall provide power to all dumps switching inside the cab.

## **TANK MODIFICATION FOR DRIVER SIDE ROUND DUMP**

## **8" ROUND STAINLESS STEEL DUMP ELECTRIC ACTIVATED - DRIVER SIDE**

An EJ Metals brand "New Maddic" style dump valve shall be installed at the driver side of the water tank. The dump shall be a pneumatically actuated 8" stainless steel UltraFlow water valve.

The dump shall be equipped with electrically operated stainless steel extension chute.

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## **DRIVER SIDE DUMP SWITCHING - REAR OF BODY**

The driver dump switching shall be installed on the driver side of the rear body panel. The switch shall be a toggle style switch installed in a protective cast enclosure with a hinged door. A light shall be installed inside the enclosure to illuminate the switching area. This light shall be activated whenever the vehicle marker lights are turned on.

## **DRIVER SIDE DUMP SWITCHING - IN CAB**

The driver's side dump shall be switched by a momentary style multiplexed switch from inside the cab. The switch shall be located in an area near the driver and shall be a backlit style switch.

The switch shall be interlocked with a master dump power switch located in the same switch console. The master dump power switch shall provide power to all dumps switching inside the cab. This setup is designed to prevent accidental activation of a dump from inside the cab.

## **TANK MODIFICATION FOR OFFICER SIDE ROUND DUMP**

### **8" ROUND STAINLESS STEEL DUMP ELECTRICAL ACTUATED - OFFICER SIDE**

An EJ Metals brand "New Maddic" style dump valve shall be installed at the officer side of the water tank. The dump shall be a pneumatically actuated 8" stainless steel UltraFlow water valve.

The dump shall be equipped with a electrically operated stainless steel extension chute.

### **OFFICER SIDE DUMP SWITCHING - REAR OF BODY**

The officer dump switching shall be installed on the officer side of the rear body panel. The switch shall be a toggle style switch installed in a protective cast enclosure with a hinged door. A light shall be installed inside the enclosure to illuminate the switching area. This light shall be activated whenever the vehicle marker lights are turned on.

### **OFFICER SIDE DUMP SWITCHING - IN CAB**

The officer's side dump shall be switched by a momentary style multiplexed switch from inside the cab. The switch shall be located in an area near the driver and shall be a backlit style switch.

The switch shall be interlocked with a master dump power switch located in the same switch console. The master dump power switch shall provide power to all dumps switching inside the cab, this setup is designed to prevent accidental activation of a dump from inside the cab.

### **DIRECT TANK FILL - DRIVER SIDE**

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One (1) 2-1/2" NST direct tank fill shall be provided at the rear of the body, on the driver side, as low as possible. The direct tank fill shall be gated with a 2-1/2" Fireman's Friend (TTMA 6-bolt attachment pattern) check-type fill valve. The fill valve shall be capable of flowing at a rate in excess of 1,000 gallons per minute and will be of a self deflecting design, requiring no additional diffusion device. The fill valve shall be constructed of stainless steel, with a spring actuated piston-type sealing mechanism to minimize seal wear and provide positive sealing of the valve. The fill shall be equipped with a 30 degree elbow terminating with a 2-1/2" NST female swivel connection.

## **DIRECT TANK FILL - OFFICER SIDE**

One (1) 5" Storz direct tank fill shall be provided at the rear of the body, on the officer side, as low as possible. The direct tank fill shall be gated with a 4" Fireman's Friend (TTMA 8-bolt attachment pattern) check-type fill valve. The fill valve shall be capable of flowing at a rate in excess of 1,000 gallons per minute and will be of a self deflecting design, requiring no additional diffusion device. The fill valve shall be constructed of stainless steel, with a spring actuated piston-type sealing mechanism to minimize seal wear and provide positive sealing of the valve. The fill shall be equipped with a 30 degree elbow terminating with a 5" Storz connection.

## **APPARATUS BODY DESIGN CONSTRUCTION**

The body and side compartment assemblies shall be designed and assembled to provide maximum strength and durability under all operating conditions. Each compartment provided shall have a minimum load capacity of 500 pounds, providing a total of at least 1000 pounds of storage space.

Special attention shall be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on panels shall be provided with a dissimilar metals isolation barrier to prevent electric corrosion.

## **ELLIPTICAL TANKER BODY**

The apparatus design shall incorporate the vehicle requirements as specified in the latest revision of NFPA 1901 as required for a "Mobile Water Supply" type apparatus.

The body and side compartment assemblies shall be designed and assembled to provide maximum strength and durability under all operating conditions. Each compartment provided shall have a minimum load capacity of 500 pounds, providing a total of at least 1000 pounds of storage space.

Special attention shall be taken to minimize rust on all fabricated parts and structural members of the body. All bolt-on panels shall be provided with a dissimilar metals isolation barrier to prevent electric corrosion.

## **BODY AND COMPARTMENT FABRICATION - 3/16" ALUMINUM**

All compartment panels and body side sheets shall be entirely 3/16" aluminum (5052-H32). Each side compartment assembly shall be both plug 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

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installed and the entire body is aligned to be completely symmetrical. The super structure is then welded to the compartment side panels and 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 due 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 finish paint to ensure proper compartment seal.

## **100" WIDE FIRE BODY**

The fire body shall be 100" wide.

## **SUPER STRUCTURE - ALUMINUM**

The body super structure shall be an all welded configuration utilizing a combination of 3" x 1-1/2" 6061-T6 thick walled structural tubing and 6061 structural channel.

This structure shall be designed to totally support the full length and width of the body and shall be welded to the body side compartments by use of reinforcement plates to incorporate the compartments into an integral part of the body weldment.

The super structure shall be held on the chassis frame by "U" bolts. The "U" bolts shall be bolted through a "J" shaped bracket that fits over the bottom flange of the chassis frame rails. In addition, a 1/2" thick A36 bracket shall be bolted to the chassis frame rails on an angle behind the rear axle to prevent the body from shifting fore and aft on the chassis frame rails.

## **STEPPING, STANDING, & WALKING SURFACES**

All stepping, standing, and walking surfaces on the body shall meet NFPA #1901 anti-slip standards. Aluminum tread plate utilized for stepping, standing, and walking surfaces shall be Alcoa No Slip type. This material shall be certified to meet the NFPA #1901 standard. Upon request by the Purchaser, manufacturer shall supply proof of compliance with this requirement. (There shall be No Exceptions allowed for this paragraph)

## **DRIVERS SIDE COMPARTMENTATION**

One low side compartment, with a rollup door, forward of the rear wheels. Overall compartment dimensions 34" High x 70" Wide x 26" Deep, with a door opening of 31-1/2" High x 65" Wide. Internal compartment height 34" High in the forward 14" Deep area, 29" High in the rear 12" Deep area.

## **OFFICERS SIDE COMPARTMENTATION**

One low side compartment, with a rollup door, forward of the rear wheels. Overall compartment dimensions 34" High x 70" Wide x 26" Deep, with a door opening of 31-1/2" High x 65" Wide. Internal compartment height 34" High in the forward 14" Deep area, 29" High in the rear 12" Deep area.

## **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.

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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.

## **ROBINSON ROLL-UP DOORS**

The roll-up doors shall be Robinson (ROM) brand roll-up doors, equipped with a brushed aluminum finish, with a PVC inner seal to prevent metal to metal contact and to repel moisture. The slats shall be double-wall extrusion 1.366" high by .315" thick with interlocking end shoes to prevent the slats from moving side-to-side and binding the door. All slats are to have interlocking joints to prevent penetration by sharp objects.

## **SWEEP-OUT COMPARTMENT FLOORS**

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.

Compartment with roll-up style doors shall have the external floor flange stepped down, 1/2" high x 2" deep, to produce a sealing surface for the roll-up doors below the compartment floor. The sweep out design shall also permit easy cleaning.

Compartment set on running boards, which could cause additional corrosion potential, are not acceptable.

## **COMPARTMENT TOPS**

Compartment tops shall be covered with polished aluminum tread plate on both sides.

## **PORTA TANK MOUNTING**

Fold down type bracket to hold one new 3,000 gallon porta-tank. To be mounted on passenger side.

## **HARD SUCTION TRAYS**

Two hard suction hose trays to be mounted on driver's side.

## **COATED FASTENERS - (NO EXCEPTIONS)**

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All exterior fasteners shall be coated stainless steel screws. Screw threads shall be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads shall be coated with a sealing element to prevent galvanic corrosion between dissimilar metals. Non-coated screws shall only be provided as part of vendor supplied component installations.

### **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 in all lower compartments to access spring pins, 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.

### **REAR BODY PANEL**

The rear body panel shall be fabricated from a minimum of 3/16" polished aluminum tread plate and shall extend the full width between the body side sheets. This panel shall extend from the base of the body to the lower portion of the water tank. The panel shall be bolted in place and shall be fully removable.

### **REAR STANCHIONS**

Stainless Steel light support brackets shall be provided on the tank at the rear portion, one each side. The rear mounted stanchions shall accommodate the upper rear emergency lighting as well as the rear scene lights.

### **RUNNING BOARD STEPS**

The driver and officer running board steps shall be fabricated of 3/16" polished aluminum tread 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.

### **REAR BUMPER**

The unit shall be equipped with a full width rear bumper. The bumper shall be constructed from aluminum tread plate and will be 4" High x 4" Deep.

### **REAR STEP COMPARTMENT**

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One (1) rear step compartment shall be provided between the frame rails. This compartment shall be as tall, wide and deep as possible in the given area. This shall vary based on frame width, frame height and depth of rear cross member. The compartment shall have a hinged tread plate door with a D-ring handle automotive latch.

Officer Side – Electric fold down storage for 3000 gallon porta-tank

## **FOLDING STEPS-FRONT OF BODY**

Two (2) Austin Hardware model FS-200 CHR large folding steps, made of high strength die cast aluminum, with a textured chrome plate finish, minimum of 42 in<sup>2</sup> surface, conforming to NFPA-1901 requirements, shall be provided on the front face of the running board compartments, above running board steps, one (1) each side. The steps shall be mounted to accommodate access to the body hosebed area with a maximum of 18" height between each step.

## **SAFETY SIGN(S) AT REAR STEP AND CROSS WALKWAY(S)**

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.

## **MUD FLAPS**

Heavy duty mud flaps shall be provided behind the rear wheels.

## **REAR TOW EYES**

Two (2) painted tow eyes shall be furnished on the rear of the vehicle, extending through the rear body panel. 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 shall be smooth and free from sharp edges, and have a minimum eyelet hole of 2-1/2". The tow eyes shall be painted.

## **\*\*\*\* COMPARTMENT ACCESSORIES \*\*\*\***

## **ADJUSTABLE SHELVING**

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 follows:

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Two (2) adjustable shelf(s) shall be provided and mounted as directed by the fire department.

## **ADDITIONAL ITEMS SUPPLIED WITH THE VEHICLE**

- 1 - Pint of touch up paint for each color
- 1 -Bag of assorted stainless steel nuts and bolts

## **LOOSE EQUIPMENT**

The following items shall be provided and shipped loose with the completed apparatus at the time of delivery:

## **WHEEL CHOCKS**

Two (2) ZICO #SAC-44 wheel chocks shall be mounted forward of the rear wheels on the driver side below the side running board compartments.

## **\*\*\*\* PAINT SECTION \*\*\*\***

## **PAINT, PREPARATION AND FINISH**

The PPG Delta, Low V.O.C., polyurethane finishing system, or equal, shall be utilized. A "Clear Coat" paint finish shall be supplied to provide greater protection to the quality of the exterior paint finish.

All removable items, such as brackets, compartment doors, etc. shall be painted separately to insure finish paint behind mounted items. All compartment unwelded seams exposed to high moisture environments shall be sealed using permanent pliable caulking prior to finish paint.

## **BODY PRIMER & PREPARATION**

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.

## **BODY FINISH PAINT**

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.

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The entire body shall be buffed and detailed.

## **BODY PAINT**

The inside and underside areas of the complete body assembly shall be painted black, prior to the installation of the body on the chassis or torque box.

## **COMPARTMENT PAINT**

The interior of the compartments shall be finish painted with Zolatone #20-63 Marble Stone scuff resistant paint to provide a protective application over all of the compartment interior surfaces.

## **BODY PAINT**

The body paint finish shall be PPG Delta System in a single color, to match customer furnished paint codes and requirements.

## **PUMP / PIPING PAINT**

The pump enclosure and pump/plumbing within the pump enclosure shall be painted black.

## **CHASSIS CAB PAINT**

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

## **WHEEL PAINT**

The chassis wheels shall be painted as provided by the commercial chassis manufacturer.

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## **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.

## **RUST PROOFING**

The entire unit shall be thoroughly rust proofed utilizing rustproof and sound deadening materials applied in manufacturer recommended application procedures. Rust proofing shall be applied during the assembly process and upon completion to insure proper coverage in all critical areas.

## **\*\*\*\* LETTERING AND STRIPING \*\*\*\***

### **LETTERING**

Lettering shall not be provided any where on the apparatus.

## **\*\*\*\* NFPA REQUIRED SCOTCH-LITE STRIPING \*\*\*\***

### **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.

The Scotch-Lite shall be white in color.

### **SCOTCH-LITE ACCENT STRIPES**

A 1" high Scotch-Lite material accent stripe shall be incorporated into the Scotch-Lite scheme to border the primary Scotch-Lite stripe on the top and bottom edges. Final layout of this configuration shall be determined by the Fire Department.

### **REAR CHEVRON STRIPING**

At least 50% of the rear facing vertical surface shall be covered with alternating strips of reflective striping.

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The striping shall be 6" ScotchLite.

The Scotch-Lite shall be Red and Yellow in color.

## \*\*\*\*\* WARRANTIES & REQUIRED INFORMATION \*\*\*\*\*

### WARRANTY {ONE YEAR} INTERNATIONAL 4000 SERIES

Revised 10/2008

#### DISCLAIMER

NO WARRANTIES ARE GIVEN BEYOND THOSE DESCRIBED HEREIN. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. THE COMPANY SPECIFICALLY DISCLAIMS WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ALL OTHER REPRESENTATIONS TO THE USER/PURCHASER, AND ALL OTHER OBLIGATIONS OR LIABILITIES. THE COMPANY FURTHER EXCLUDES LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES ON THE PART OF THE COMPANY OR SELLER.

No person is authorized to give any other warranties or to assume any liabilities on the Company's behalf unless made or assumed in writing by the Company; and no other person is authorized to give any warranties or to assume any liabilities on the seller's behalf unless made or assumed in writing by the seller.

Remedies Under State or Provincial Law: Some States and Provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to the owner. This warranty gives the owner specific legal rights, and he may also have other legal rights which may vary by state or province.

#### BASIC VEHICLE

Navistar, Inc., at its option, will repair or replace any part of this vehicle which proves defective in material and/or workmanship in normal use and service, with new or renewed parts, for the first 12 months from new vehicle delivery date, regardless of distance traveled. Exceptions are listed below under What Is Not Covered. This warranty is automatically transferred to subsequent owners at no charge.

#### COMPONENT COVERAGE

The components described below are given additional warranty coverage of variable time periods and distance traveled limitations, as shown in the Warranty Coverage Schedule.

- Frame Side Rails.
- Cab/Cowl Structure (on-highway applications).
- The Cab/Cowl is warranted against perforation due to corrosion, except for perforation caused by industrial chemicals and/or corrosion caused by use in a corrosive industrial environment.

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- Navistar Diesel Engines including: block, cylinder heads, fuel pump, high pressure pump, turbocharger, internally lubricated components, and water pump; electronic modules, relays, sensors and regulators required for electronic engine operation; glow plugs, glow plug relay and harness and associated connectors for 12 months/unlimited mileage. Excluding: attaching accessories (e.g., fan clutch, alternator, starter, etc.), thermostats, and externally mounted electrical and filtration systems.
- Spicer front & rear axles, clutch, prop shaft, and transmission; excluding brakes, wheel ends, axle shafts, controls & attachments.
- Spicer front & rear axles and prop shaft, when used with Allison transmission; excluding brakes, wheel ends, axle shafts, controls & attachments.

NOTE: The customer has 180 days from DTU (delivery to end user) to purchase any extended warranty on the unit. See your local International dealer for details.

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## **BASIC VEHICLE COVERAGE**

- Basic Vehicle Warranty (Feature 40010) - 12 month, Unlimited Miles
- Basic Vehicle Warranty (Durastar Only-Feature 40013) - 12 month, Unlimited Miles

## **COMPONENTS**

- Frame Side Rails (1000 ONLY) - 60 month, Unlimited Miles
- Frame Side Rails (42/43/4400/73/7400 ONLY) - 84 month, Unlimited Miles
- Cab/Cowl Structure - 60 month, Unlimited Miles
- Cab/Cowl Perforation Corrosion - 60 month, Unlimited Miles
- Batteries - 12 month, Unlimited Miles
- Brightwork, Chassis Paint and Corrosion (other than Cab) - 6 month, Unlimited Miles
- 42/43/4400 only - Cab Paint - 12 month, Unlimited Miles

## **ENGINE**

Fire Trucks, Ambulances, Emergency Rescue application only

- MaxxForce 7 Engine - 60 month, 100,000 Miles
- MaxxForce 7 Engine glow plugs, relay, harness/connector - 36 month, Unlimited Miles
- MaxxForce DT Engine - 60 month, 100,000 Miles
- MaxxForce 9 Engine - 60 month, 100,000 Miles

## **DRIVETRAIN**

- Spicer axles, Propshaft, Eaton clutch, TTC Transmission - 24 month, Unlimited Miles
- Transfer Case - 24 month, Unlimited Miles
- Transfer Case (73/7400 4x4/4x6 Only) - 12 month, Unlimited Miles
- Eaton/Fuller 6206/6306 Transmission - 24 month, Unlimited Miles

NOTE: All trucks used in the waste/recycling application must have components that meet Navistar minimum recommendations for the application. If a truck is ordered for use in a waste application outside the parameters outlined in G-6008, Navistar reserves the right to void all written and implied chassis warranties.

Any failures resulting from improper Allied Equipment installation or Equipment compatibility with

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the Truck components will be the responsibility of the Equipment installer or manufacturer.

Any failures resulting from improper alteration to the original components will be the responsibility of the company or person performing the alterations.

## **WHAT IS NOT COVERED**

AFTER THE FIRST 90 DAYS FROM DELIVERY TO USER (DTU):

- Correction of loose fasteners, squeaks, rattles and unusual noises.
- Towing
- Adjustments (e.g., headlights, brake/clutch adjustments, steering system adjustments, coolant levels).

## **COMPONENTS / ITEMS:**

- Warranted by their respective manufacturers (e.g., non Navistar brand engines, tires & tubes, Allison Transmissions, radios, Lubricants, etc.)
- Bodies, equipment and accessories installed by other than authorized Navistar Truck employees at Navistar Truck manufacturing plants.
- Front and rear axle alignment.

## **REPAIRS:**

- Maintenance-related items/repairs or those as a result of normal wear and tear, including tune-ups, brake/clutch lining, windshield wiper blades, tire balancing, lubrication and other similar procedures/parts required to keep vehicle in good working condition.
- To any part of the vehicle subjected to misuse, negligence, improper maintenance, improper operation, or which are the results of an accident.
- Fade, runs, mismatch or damage to paint, trim items, upholstery, chrome, polished surfaces, etc., resulting from environmental causes, improper polishes, cleaners or washing solutions, or chemical and industrial fallout.
- In which all owners and operators of this vehicle do not strictly adhere to power train, prop shaft and suspension sales guidelines (specifications).

## **OTHER:**

- Vehicles sold and/or operated outside the United States and Canada.
- Vehicles/components which have had unauthorized alterations or modifications.
- Vehicles on which the odometer reading has been altered.
- Loss of time or use of the vehicle, loss of profits, inconvenience, or other consequential or incidental damages or expenses.
- Replacement of defective parts with parts other than those provided by Navistar, Inc.

## **BODY STRUCTURE WARRANTY**

The proposed body will be warranted against structural defects for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

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## **CORROSION WARRANTY**

The proposed body will be warranted against rust-through or perforation, due to corrosion from within, for a period of ten (10) years. Perforation is defined as a condition in which an actual hole occurs in a sheet metal panel due to rust or corrosion from within. Surface rust or corrosion caused by chips or scratches in the paint is not covered by this warranty.

## **PAINT FINISH WARRANTY**

The proposed paint finish will be warranted for a period of seven (7) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

## **WATER TANK (LIFETIME)**

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 Limited Standard Warranty**

Hale Products, Incorporated ("Hale") hereby warrants to the original buyer that products manufactured by Hale are 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 period Hale will cover parts and labor for the first two (2) years and parts only for years three (3) through five (5).

## **NFPA REQUIRED LOOSE EQUIPMENT, PROVIDED BY FIRE DEPARTMENT**

The following loose equipment as outlined in NFPA 1901, 2009 edition in accordance with the applicable requirements, will be provided by the fire department. All loose equipment will be installed on the apparatus before placed in emergency service, unless the fire department waives NFPA section 4.21.

### **Section 7.6 Suction Hose or Supply Hose.**

It is the responsibility of the purchaser to ensure that all required equipment has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

- 7.6.1 A minimum of 20 ft (6 m) of suction hose or 15 ft (4.5 m) of supply hose shall be carried.
- 7.6.1.1 Where suction hose is prodded, a suction strainer shall be furnished.
- 7.6.1.2 Where suction hose is provided, the friction and entrance loss of the combination suction hose and strainer shall not exceed the losses listed in Table 16.2.4.1 (b) or Table 16.2.4.1(c).
- 7.6.1.3 Where supply hose is provided. It shall have couplings compatible with the local hydrant outlet connection on one end and the pump intake connection on the other end.

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7.6.2 Suction hose and supply hose shall meet the requirements of NFPA 1961, Standard on Fire Hose.

### Section 7.7 Minor Equipment.

7.7.2.1 The mobile water supply apparatus shall be equipped with at least 200 fl (60 m) of 2 1/2 in. (65 mm) or larger fire hose.

7.7.2.2 If the mobile water supply apparatus is equipped with a fire pump, the following shall be provided:

- (1) 400 ft (120m) of 1 1/2 (38mm), 1 3/4 in. (45mm), or 2 in. (52mm) fire hose
- (2) Two handline nozzles, 95 gpm (360 L/min) minimum. It is the responsibility of the purchaser to ensure that all required equipment has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

7.7.3 Miscellaneous Equipment. The following additional equipment shall be carried on the apparatus:

- (1) One 6 lb (2.7 kg) flathead axe mounted in a bracket fastened to the apparatus
- (2) One 6 lb (2.7 kg) pickhead axe mounted in a bracket fastened to the apparatus
- (3) Two portable hand lights mounted in brackets fastened to the apparatus
- (4) One approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus
- (5) One 2 1/2 gal (9.5 L) or larger water extinguisher mounted in a bracket fastened to the apparatus
- (6) One self-contained breathing apparatus (SCBA) complying with NFPA 1981, Standard on Open-Circuit Self Contained Breathing Apparatus (SCBA) for Emergency Services, for each assigned seating position. But not fewer than four, mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer
- (7) One spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space
- (8) One first aid kit
- (9) Two combination spanner wrenches mounted in brackets fastened to the apparatus
- (10) One hydrant wrench mounted in brackets fastened to the apparatus
- (11) One double female 2 1/2 in. (65 mm) adapter with National Hose (NH) threads, mounted in a bracket fastened to the apparatus
- (12) One double male 2 1/2 in. (65 mm) adapter with NH threads, mounted in a bracket fastened to the apparatus
- (13) Two or more wheel chocks. Mounted in readily accessible locations, that together will hold the apparatus. When loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released
- (14) One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, Standard for High-Visibility Public Safety Vests, and have a five-point breakaway feature that includes two at the shoulders, two at the sides, and one at the front
- (15) Five fluorescent. orange traffic cones not less than 28 in. (711 mm) in height, each equipped with a 6 in. (152 mm) retroreflective white band no more than 4 in. (102 mm) from the top of the cone, and an additional 4 in. (102 mm) retroreflective white band 2 in. (51 mm) below the 6 in. (152 mm) band
- (16) Five illuminated warning devices such as highway flares, unless the live fluorescent orange traffic cones have illuminating capabilities
- (17) One automatic external defibrillator (AED)

7.7.3.2 If the mobile water supply apparatus is equipped with a fire pump and none of the intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection

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with pump intake threads on the other side shall be carried. Any intake connection larger than 3 in. (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.

7.7.3.3 If the mobile water supply apparatus is equipped with a fire pump, a rubber mallet, for use on suction hose connections shall be carried in a bracket fastened to the apparatus.

7.7.3.4 If the apparatus does not have a 2 1/2 in. intake with NH threads, an adapter from 2 1/2 in. NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.

7.7.3.5 If the supply hose carried has other than 2 1/2 in. NH threads, adapters shall be carried to allow feeding the supply hose from a 2 1/2 in. NH thread male discharge and to allow the hose to connect to a 2 1/2 in. NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

#### 14.1.8.4 Fire Helmet.

It is the responsibility of the purchaser to ensure that "Fire helmets shall not be worn by persons riding in enclosed driving and crew areas any time the apparatus is placed in service.

14.1.8.4.1 A location for helmet storage shall be provided.

14.1.8.4.2 If helmets are to be stored in the driving or crew compartment, the helmets shall be secured in compliance with 14.1.11.2.

#### 14.1.10 SCBA Mounting.

It is the responsibility of the purchaser to ensure that any SCBA equipment has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

14.1.10.1 Where SCBA units are mounted within a driving or crew compartment, a positive latching mechanical means of holding the SCBA device in its stowed position shall be provided such that the SCBA unit cannot be retained in the mount unless the positive latch is engaged.

14.1.10.2 The bracket holding device and its mounting shall retain the SCBA unit when subjected to a 9 G force and shall be installed in accordance with the bracket manufacturer's requirements.

14.1.10.3 If the SCBA unit is mounted in a seatback, the release mechanism shall be accessible to the user while seated.

#### 14.1.11 Equipment Mounting.

It is the responsibility of the purchaser to ensure that any equipment installed on the apparatus by them or their subcontractor meets the following requirements prior to placing it in service.

14.1.11.1 All equipment required to be used during an emergency response shall be securely fastened.

14.1.11.2 All equipment not required to be used during an emergency response, with the exception of SCBA units, shall not be mounted in a driving or crew area unless it is contained in a fully enclosed and latched compartment capable of containing the contents when a 9 G force is applied in the longitudinal axis of the vehicle or a 9G force is applied in any other direction, or

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the equipment is mounted in a bracket(s) that can contain the equipment when the equipment is subjected to those same forces.

## Section 15.9.3 Reflective Striping.

It is the responsibility of the purchaser to ensure that Reflective Striping has been supplied and installed on the apparatus in order to achieve compliance with the standard prior to placing it in service.

15.9.3.1" A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.

15.9.3.1.1 The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

15.9.3.1.2 The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus.

## 15.10 Hose Storage.

It is the responsibility of the purchaser to ensure that any hose storage area includes a positive means to prevent unintentional deployment in order to achieve compliance with the standard prior to placing it in service.

15.10.7 Any hose storage area shall be equipped with a positive means to prevent unintentional deployment of the hose from the top, sides, front, and rear of the hose storage area while the apparatus is underway in normal operations.