== Commercial Chassis for HME Ahrens-Fox - 4.001 ==

NFPA-1901, Current Edition - Complete Apparatus - Comm Chassis

## NFPA 1901

The National Fire Protection Association "Standard for Automotive Fire Apparatus, Current Edition, is hereby adopted and made a part of these specifications, the same as if it were written out in full detail, with the exception of the section dealing with "Equipment Recommended for Various Types of Apparatus". Bidders shall provide the equipment specifically requested herein and the buyer shall supply the rest before the apparatus is put into service.

Vocation and Basic Attributes - Apparatus

## APPARATUS VOCATION AND BASIC ATTRIBUTES

When completed this HME Ahrens-Fox fire apparatus shall have the following attributes:

## Order Information:

Apparatus Builder: **HME, Incorporated**

Sales Representative:Factory

**User Information:** End User: Mailing Address: City:

State:

Zip Code:

F.D. Contact:

Phone Number: Fax Number: Contacts email:

## Hose well options:

Indicate the hose that shall be installed in the well. Hosewell Location:

\_NA\_ - Officer's

\_NA\_ - Center

\_NA\_ - Driver's Hose Brand: Hose Model:

Hose Size: inch Number of feet required:

If more than one hosewell is ordered indicate on a separate piece of paper the information for the other well.

## Is there an overall height restriction?

\_NA\_ - Inches ground to the top of the highest part of apparatus when fully loaded

## Are there minimum angle of approach or departure angle requirements?

**If so fill in the blank.**

Minimum angle of approach - NFPA degrees Minimum angle of departure - NFPA degrees

Paint Codes and Basic Attributes - Apparatus

## PAINT CODES AND BASIC ATTRIBUTES

**Paint Information**

Paint Manufacturer: **PPG is HME Standard Paint**

## CAB EXTERIOR

Single Color:

Primary color: Crimson Red Primary paint code: 4992

## BODY PAINT

Color Body Panels Color:\* Crimson Red Color Body Panels Code:\* 4992

## FRAME RAILS

Color Painted Frame Color: \* Black Color Painted Frame Code:\* N0001

\*Unless noted elsewise the cab lower color will be used when painted rails are selected.

HME Supplied Commercial Chassis

## COMMERCIAL CHASSIS SUPPLIED BY APPARATUS MANUFACTURER

Commercial Chassis, Kenworth

The following Kenworth chassis shall be provided:

Be sure to add this to the top of the spec: XXXXX 2 Door

XXXXX Fr axle load (lbs) 16000 Rr axle load (lbs) 46000 XXXXX WB: 213"

XXXXX CA: 145"

## Model

0000370 **T370 SERIES CONVENTIONAL**

Electric Door locks LH/RH; Ignition & doors keyed alike; Single electric horn; Single-piece windshield; Electric windshield wipers, 2-speed plus intermittent; Electric windshield washers; Steering wheel 18in. 4-spoke; Glovebox door with locking latch; Dash-mounted cruise control with switches;Turn signal switch with column-mounted dimmer; Standard dash panels include gray w/ burl wood accents; Slate Gray interior primary color; Dark Slate Gray seat color; Floormat; Inside sunvisor, LH/RH; Door courtesy lights; Under-dash center

|  |  |
| --- | --- |
| 0070006 | console with 1 cup holder, 1 ashtray & 1 lighter.**T370 Class 7: medium-duty Conventional.** |
| 0072001 | Chassis operation will include stationary application used in lower 48 states [US only]. Stationary operation is defined as running the engine under load while stationary at a substantial fraction of engine gross horsepower (60% or greater) for an extended period of time (longer than 5 - 10 minutes). |
| 0080050 | **CARB Idle Emissions Reduction Feature for PX-7 and PX-9** |
| 0080070 | **CARB Exempt Application Emergency Vehicle Only.** |
| 0090017 | **Medium-duty 6x4 automatic.** |
| 0091121 | **Water** |
| 00931210095110 | **Fire truck service. Vehicles used in fighting fires.** Typically have pumps, etc., mounted in the body. Road usage: minimum 5% Class B and maximum 5% Class D.**Tank** |
| 98025 | **U.S. Domestic Registry, 50-State** |

## Engine & Equipment

129583 **PACCAR PX-9 380EV 2017 380@2000 368@2100**

1150@1400 Emergency Vehicle includes turbo exhaust brake, no code is used. Diagnostic Plug for data link, Oil Cooler, Aluminum Flywheel Housing.

N09200 N205 64...Standard Maximum Speed Limit [LSL] N09220 N207 0. Expiration Distance

N09300 P19 64. Maximum Cruise Speed

N09360 N203 252..Reserve Speed Function Reset Distance N09380 N202 0. Maximum Cycle Distance

N09400 N206 10. Maximum Active Distance

N09420 N201 0. Reserve Speed Limit Offset

N09440 P11 NO. Engine Protection Shutdown

N09460 P06 NO Gear Down Protection

N09480 P26 1400.Max PTO Speed

N09500 P02 NO. Cruise Control Auto Resume

N09520 P04 NO. Auto Engine Brake in Cruise

N09540 N209 0. Expiration Distance

N09560 P520 YES..Enable Idle Shutdown Park Brake Set N09580 P32 5. Timer Setting

N09600 P233 YES..Enable Impending Shutdown Warning N09620 P234 60 Timer For Impending Shutdown Warning

N09640 P516 35 Engine Load Threshold

N09680 P33 NO. Idle Shutdown Manual Overrule

N09720 P230 YES..Enable Hot Ambient Automatic Overrule N09740 P46 40. Low Ambient Temperature Threshold

N09760 P56 60. Intermediate Ambient Temperature Threshold

N09780 P47 80. High Ambient Temperature Threshold

|  |  |
| --- | --- |
| 1000684 | **Effective VSL Setting NA** |
| 1000858 | **Engine Idle Shutdown Timer Disabled** |
| 1000859 | **Enable EIST Ambient Temp Overrule** |
| 1000891 | **Eff EIST NA Expiration Miles** Use only with MX and Cummins engines |
| 1002060 | **Air compressor: Cummins 18.7 CFM For Cummins And PACCAR PX** |
| 1031130 | **engines.****Air Cleaner: Dry-type firewall mounted w/filter** |
|  | restriction indicator. |
| 1099300 | **Air inlet ember separator NFPA compliant for** |
|  | fire applications. |
| 1105230 | **Fan Hub: Horton 2-Speed for ISL9, ISL-G,** |
|  | PX-8 or PX-9 |
| 1121200 | **Cooling module: 1000 square inches** |
|  | T170/T270/T370/T470. Includes metal surge tank on T170/T270/T370. |
| 1160205 | **Bug screen: Front of grille on C500 ,T800, T880,** |
|  | and W900. Behind grille on T660, T680, and T300 (Medium Duty). |
| 1247147 | **Exhaust: 2017 EPA RH Under Cab DPF/SCR For** |
|  | PX-9 w/ Single Horizontal Tailpipe. |
| 1321145 | **Fuel Filter:Fleetguard FS1003** |
|  | Fuel/Water Separator for PX-9 |
| 1321200 | **Run Aid:None** |
|  | \*For Fuel Filter |
| 1321300 | **Start Aid:None** |
|  | \*For Fuel Filter |
| 1600713 | **Oil pressure sender for pump panel gauge VDO** |
|  | 360-009. |
| 1700149 | **Retarder Jacobs for PX-8/9 ISL w/** |
|  | 3-way switch.. Replaces the standard turbo brake for PX-8 engines. |
| 1812451 | **Alternator: Delco 40SI 320 amp Brushless** |
|  | with battery voltage sense |
| 1825623 | **Batteries: 3 Optima 31A Threaded post (900)** |
|  | 2700 CCA. |
| 1836100 | **Starter: PACCAR 12 volt electrical system. W/** |
|  | centralized power distribution incorporating plug-in style relays. Circuit protection for |
|  | serviceability, 12-volt light system w/circuit protection circuits number & color coded. |
| 1840066 | **Cab Power Cutoff SW on Cab Floor** |
|  | NFPA Compliant - Engine Shut off |
| 1900082 | **Multi-function engine connector for body builder** |
|  | interface for Cummins. |
| 1900976 | **Body Builder Control Harness coiled EOF for** |

customer installed remote throttle and remote PTO controls. Harness includes Remote PTO control and Remote Throttle controls. T680/T880 models do not require 12-way engine connector sales codes. All other models require (1900082 or 1900084).

## 1901084 Body Builder Battery Power Prewire

**Transmission & Clutch**

2012193 **Transmission: Allison 3000EVS 5-speed**

w/PTO drive gear. 5th Gen controls. Includes heat exchanger & oil level sensor. Emergency Vehicle Series for vocational applications. Transynd transmission fluid is standard on all Allison 1000, 2000, 3000 & 4000 series transmissions.

## 2406802 Driveline: 3 SPL170XL; 2 centerbearing.

requires 3500057 interaxle driveline

## 2409917 Two bolted centerbearing crossmembers.

This option upgrades existing crossmembers. The cost does not include the centerbearing and bracket. Crossmember location will be in accordance with Kenworth engineering standards, using the major components specified on the DTPO.

## 2410018 Torque converter included w/Allison

Transmission.

2410244 **J1939 Park Brake Auto Neutral**

## 2429358 Rear transmission support springs for

transmission PTO applications are required to ensure that engine flywheel housings are not overloaded when transmission PTO’s are installed.

## Front Axle & Equipment

2504160 **Dana Spicer D1600 Front Axle 16K**

standard track.

## 2603006 Front brakes included w/ front hub package.

2703016 **Front Brake:Bendix 16.5x6 air brake package**

for 16K non-driving front axle. Includes cast drums, iron 10-bolt hub pilot Preset hubs, hub caps, oil seals & slack adjusters. For use with 22.5 inch wheels

## 2864026 Front Springs Taperleaf 16K 2-stage with shocks

and 54 in. spring length. T370 w/16K front axle.

2895300 **Dual power steering gears: 16K.**

## 2899336 Power Steering Cooler:Radiator Mounted Air-to-Oil Rear Axle &

**Equipment**

|  |  |
| --- | --- |
| 3142170 | **Dual Rear Axle 46,000 lbs. Meritor RT46-164EH** |
|  | Heavy wall housing |
| 3200489 | **Rear Axle Ratio - 5.63** |
| 3300002 | **Dual rear brakes included w/rear hub package.** |
| 3401002 | **Dual 46K Air Brake package includes 16-1/2x7 in.** |
|  | brakes, cast drums, aluminum 10-bolt hub pilot Preset hubs, slack adjusters and oil seals for use w/ 22.5 in. wheels. |

3485208 **Spring Brake: 3036 dual 30 square inches;**

36 square inches spring chamber.

## 3495232 Bendix 6S/6M anti-lock brake system w/ air

traction control (ATC) and electronic stability program (ESP) for full truck. Must code for additional body information.

## 3500057 Interaxle driveline:1 Dana SPL170XL

3500072 **Tanker height less than 75 in. from top of frame**

rail

## 3742970 Tandem Hendrickson HAULMAAX (HMX) 460 46K.

54 in. axle spacing. With shocks, track rods, rubber bolster bushings and 16.5 in. saddle height. Unladen Height: 10.6 in. Laden Height: 9.5 in.

## 3832161 Double Rebound Strap Kit: Hendrickson HAULMAAX

rear suspension.

## Tires & Wheels

4038677 **Front tires: Goodyear G291 315/80R22.5 18PR.**

42.3 in. diameter, all position. 19.7 in. SLR.

## 4230011 Rear Tires: Goodyear G182 RSD GHG 11R22.5 16PR

4900008 **Rear Tire Quantity: 8**

## 5045280 Front Wheel: Alcoa 89U64 22.5X9 AL

Ultra ONE Wheel.

## 5245139 Rear Wheel: Alcoa Ultra 22.5x8.25 MagnaForce

aluminum alloy, hub-pilot mount. 7400lb maximum rating. Air Disc Brake compatible.

## 5859014 Single Front Axle Wheels: Dura-Bright Buffed both

outboard & inboard surfaces of aluminum wheels.

## 5859017 Dual Rear Axle Wheels: Dura-Bright

Buffed both inboard and outboard surface of inner dual aluminum wheels.

## 5900008 Rear Wheel/Rim Quantity: 8 Frame &

**Equipment**

6056400 **Frame Rails: 10-3/4 x 3-1/2 x 3/8in. Steel 285in.**

to 336 in. Truck frame weight is 3.48 lb.-in. per pair of rails. Section modulus is17.80, RBM is 2,132,000 in-lbs per rail. Frame rail availability may be restricted based upon application, axle/suspension capacity, fifth wheel setting, or component/dimensional specifications. The results of the engineering review may result in a change to the requested frame rail. If a change is required Kenworth Application Engineering will advise the dealer of the appropriate material specification for a substitute rail.

## 6141450 Full Steel Insert for 10-5/8 in. or 10-3/4 in.

main rail. Insert length is 168 - 348 in. Adds 1,149,000 in-lb to main rail RBM. Insert weight is 2.05 lb.-in. per pair of rails. Insert length is equal to wheelbase plus rear frame cutoff plus 20.7 in. forward of front axle.

## 6308715 Bumper: Aerodynamic, Chrome. Requires a

bumper setting code.

## 6319409 40.9 in. Bumper setting. Requires a bumper code.

6321005 **Removable Front Tow Hooks: 2.**

|  |  |
| --- | --- |
| 6390103 | **Front mudflaps.** |
| 6391201 | **Custom Frame Layout: one chassis** |
| 6405000 | **In-cab steel battery box: under rider seat or in** |
| 6409906 | stand alone box. Requires appropriate AGM battery code, which varies by model, and appropriate rider seat code be selected prior to entering the workscreen. Includes 1 battery disconnect switch.**In-cab battery box location: Under rider seat** |
| 6451059 | **T270/370 Non-polished 2010 or later DPF/SCR cover** |
| 6490124 | with cab access step assembly, RH under. End plates will be painted standard black frame color.**Five-piece bolted crossmember assembly with 16mm** |
|  | frame fasteners, center and rear frame. |
| 6490427 | **Aluminum underbell crossmember. Only with** |
|  | non-drive front axle 16K and greater. For T370 only. |
| 6490430 | **Bolted Rear Cab Support Crossmember.** |
|  | Replaces T3 standard. |
| 6742009 | **Square end-of-frame w/o crossmember; non-towing.** |

## Fuel Tanks & Equip

|  |  |
| --- | --- |
| 7210056 | **Fuel Tank: 56 US gallon 24.5in. aluminum under** |
|  | replace. |
| 7722011 | **Small round DEF tank. 11 gallons of** |
| 7831044 | usable volume. The DEF tank will be located on the side you specified. If you have specific configuration or body builder concerns, please utilize the Custom Frame Layout option. Standard capacity is calculated by fuel capacity of the vehicle and will accommodate two diesel fill-ups for every DEF fill-up. For 1:1 DEF fuel fill ratio, add 7889204.**Fuel Tank Steps: 6in.wide upper & lower 1RH/1LH** |
|  | under round tank 24.5in. NFPA Compliant. Includes fuel tank crossbrace. |
| 7840015 | **Polish only one aluminum tank.** |
| 7840038 | **Polished cover for 1 DEF tank any size.** |
| 7889061 | **Polished stainless steel tank straps for 1 tank.** |
| 7889203 | **Standard DEF to fuel fill ratio: 2:1 or greater.** |
| 7889604 | **DEF tank location is on the LH.** |
| 7920056 | **Location: 56 gal fuel tank LH under cab** |

**Cab & Equipment**

8024310 **Cab: Curved Glass Conventional.**

Cab Includes aluminum & fiberglass fully hucked cab w/ all aluminum bulkhead doors & continuous stainless steel piano-style door hinges. Single electric horn standard.

Incandescent exterior lights include diagnosable bulb detection and warning. Trailer cable on tractors includes integrity detection. Standard features include multiplex wiring for interior lights, automated pre-trip inspection, short and open check diagnostics.

Warning alarm will sound when lights are left on.

## 8080137 Cab door bearing blocks, top & bottom.

8090310 **Hood: Sloped aerodynamic hood includes**

grill & separate bumper.

## 8108010 Cab heater: W/integral defrosters & A/C 45,000

btu cab heater. No sleeper heater/AC. Includes 5 mode rotary control. T660 include filter media.

## 8201200 Adjustable telescoping tilt steering column.

8203044 **Four position ignition switch, keyless.**

Available for fire truck service & EMT/emergency service only.

## 8203060 5 sets of keys. Replaces standard 2 sets of keys.

8208495 **Two spare switches: Wired to power.**

8220106 **Gauge: Dash mounted air filter restriction gauge.**

8222712 **Gauge: Fuel filter restriction gauge.**

8282009 **Instrument package: Includes speedometer,**

tachometer, fuel gauge, engine coolant temperature gauge, engine oil pressure, voltmeter. Class 8 also includes primary & secondary air reservoir gauges & an air application gauge. DEF level gauge and warning lamp are included with 2010+ engines. Engine hour meter and outside air temperature readouts are standard. Primary read out will be MPH. Add 8240620 to switch primary scale to KPH in Canada.

8282990 **Full burl wood dash panels**

## 8330013 Cab interior: Apex. Includes cloth headliner &

cab back panel, slate gray interior color, dark slate gray seats, floormats, LH/RH inside sunvisors & door courtesy lights.

## 8410191 Driver seat: Kenworth Air cushion Plus HB vinyl.

Standard features includes 7 in. fore and aft slide adjustment w/isolator, 6-23 degree recline, air suspension with cover, dual armrests, and single chamber air lumbar support. Seat cushion is 20 inches wide w/ 2-position tilt and 2-position front cushion extension. Seat material has a horizontal stitch pattern and is 2-tone in color. Seat back is carpeted and includes a map pocket. Seat is manufactured by National. Includes inside visor and retractable 3-point matching seat belts. Grey seat belts.

## 8450180 Rider seat: Kenworth Plus battery box IB vinyl.

Standard features include fixed base and backrest, fixed seat base and backrest, and dual armrests. Seat cushion is 19.5 inches. Seat material has a horizontal stitch pattern and is 2-tone in color. Seat back is carpeted. Seat is manufactured by National.

Includes inside visor and retractable 3-point matching seat belts. Grey seat belts.

## 8489899 Driver air seat height limited: NFPA compliant.

8489910 **NFPA Compliance Kit: Includes seat occupancy**

sensors. Seat belt switches, VDR & seat sensor harness, reflective labels, and a second copy of operators manual.

## 8496562 Driver/Rider Seat Belts: Red, Replace Standard.

Extended Length. Not NFPA Compliant.

## 8496575 Driver & Rider Seat Belts:Red,NFPA,Includes Bench

Replaces Standard Seat Belts.

## 8601421 Kenworth Radio with AM/FM/WB/USB and Bluetooth

8700083 **Under-dash center console: W/2 cup holders, 1**

ashtray, 1 lighter, 1 12V outlet & a storage compartment.

8700144 **Dome lamp over driver door.**

|  |  |
| --- | --- |
| 8700154 | **Self cancelling turn signal: W/head light dimmer** |
|  | switch . |
| 8800200 | **Cab access contoured grabhandles, LH/RH.** |
| 8800377 | **LH & RH NFPA Compliant Grabhandles** |
| 8800400 | **Grabhandle: LH inside door frame above dash.** |
| 8800401 | **Grabhandle: RH inside door frame above dash.** |
| 8832115 | **Daylite Door: LH/RH includes RH peeper window** |
| 8845105 | **Solenoid, switch & wiring for customer-installed** |
|  | air horn on T300 chassis. If the chassis has hydraulic brakes, it will require code 1000307 for Accessory air system for hydraulic brakes. |
| 8850210 | **Dual convex mirrors 7-1/2 in. w/ offset mounting,** |
|  | and non-heated. |
| 8850300 | **Look-Down, Pass. Door, Stainless 8.5x4.4** |
| 8867202 | **Mirror: Dual Moto heated mirrors 7 in. x 16 in.** |
|  | LH & RH remote controlled. Switch located on door pad. |
| 8869005 | **Mirror brackets 8-1/2 ft load width.** |
| 8871438 | **Rear Cab Stationary Window 17 in. x 36 in.** |
| 8879213 | **Electric-powered LH & RH door window lifts.** |
|  | Switch located on door. |
| 8890135 | **Exterior stainless steel sunvisor.** |

## Lights & Instruments

9010801 **Headlamps: Halogen Projector Low Beam, Halogen**

Complex Reflector High Beam

## 9022137 Marker Lights: Five, rectangular, LED

9030010 **Turn Signal Lights: Mounted on fender**

9070138 **Combination Stop, Tail, Turn & Backup Lights RH**

& LH.

## Air Equipment

9101215 **Air Dryer Bendix AD-IS heated Puraguard Extended**

**Warranty**

9200008 **Base Warranty - PACCAR PX-9 Engine**

24 months / 250,000 miles / 402,336 km / 6250 hours.

## 9200022 Base Warranty - Standard Service Medium Duty

12 months / Unlimited miles & km

## Paint

9700000 **Paint color number(s).**

N97020 A - 4992 CRIMSON N97200 FRAME N0001 BLACK N97700 BUMPER 4992 CRIMSON

9943004 **Bumper Unpainted**

|  |  |
| --- | --- |
| 9943051 | **Day Cab Premium Paint** |
| 9944820 | **1 - Color Paint - Day Cab**Color will be White if no other color is specified. |
| 9960003 | **Non-standard paint color.** |
| 9965510 | **Base coat/clear coat.** |

Mud Flaps, Frt Axle, Black Rubber

## CAB MUDFLAPS

Mud flaps shall be installed behind the front tires. These mud flaps shall be provided to protect the underneath of the cab and body.

Stainless 'Baby Moon' Caps & Nutcovers

## FRONT WHEEL TRIM

The front axle shall be trimmed with mirror finish, 304L grade, non-corrosive stainless steel 'baby moon' hub caps with an opening for viewing the oil seal cover, and bright finished nut covers.

Stainless "Lincoln Hat" Hub & Nut Covers

## REAR WHEEL TRIM

The rear axle(s) shall be trimmed with mirror finish, 304L grade non-corrosive stainless steel "Lincoln Hat" hub cover and bright finished nut covers.

LED Ground Lights, (2) Cab Mtd, Below Each Door, Two-Door

## CAB GROUND LIGHTING

One (1) 4" round LED light shall be mounted beneath each door. These lights shall be designed to provide illumination on areas under the driver and officer area entry/egress. All cab ground lights shall automatically activate when any cab exit door is opened and the parking brake is set.

A single switch shall be provided in the cab to activate all of the apparatus ground lights manually. Wiring Interface, Multiplex, Class 1 ES-Key Mgmnt System

## MULTIPLEX WIRING INTERFACE

The apparatus shall be equipped with a Class 1 ES-Key Management System for complete control of the electrical system devices. This management system shall be capable of performing load management functions, system monitoring and reporting, and be fully programmable for control of the electrical system.

The ES-Key system shall utilize a Controller Area Network (CAN) to provide multiplexed control signals for "real time" operation. The system shall consist of the following components:

**Universal System Manager (USM)** - The USM device shall be the CAN network controller and provide various functions to the apparatus such as load management. The USM shall be programmed from a network interface to a PC computer.

**Information Display Module** - For displaying text, warnings and diagnostics. The information Display Module shall allow the Fire Department to access and change load management shedding priority.

**Power Distribution Module(s) (PDM)** - The PDM shall be a solid state power distribution module with eight (8) outputs.

**Input/Output Module** - The module shall have sixteen (16) inputs to communicate with the USM and three (3) outputs for various body functions.

The ES-Key system shall provide diagnostic capabilities for troubleshooting the electrical system of the apparatus. A six-position switch panel shall also be provided.

Auxiliary Engine Cooler

## AUXILIARY ENGINE COOLER

A heat exchanger shall be provided on the chassis cooling system. The heat exchanger shall not allow mixing of the chassis coolant and water from the fire pump. A gated discharge line shall be installed to provide water from the fire pump to the chassis heat exchanger to assist in engine cooling during pumping operations. The heat exchanger line shall be controlled at the pump operator's panel with a Class 1 valve.

Door Reflective Material, NFPA Req'd, Comm Chassis, 2 Door

## REFLECTIVE MATERIAL - INTERIOR CAB DOOR

The front cab doors shall have a minimum of 96 square inches of reflective material affixed to the inside of each door.

Cab Console, Freightliner / KW

## CAB CONSOLE

A heavy duty angled console shall be installed in the cab between the driver and officer seats. The console shall be finished in black powder coat for durability and low reflection. The console shall be designed with a versatile single mounting rail system that accommodates commercially available panels for installation of items such as radio equipment.

The console shall contain the following items as standard:

## Console front to back

Rear back up camera Siren control box Switch control panel

Pump Shift in a laminate panel EsKey display

Rear dump controls Water tank level gauge

Console Options

The following items shall be installed on the console:

Microphone Clips Installed, (2) Two (2) microphone clips.

Tire Pressure Monitoring Device - 3 Axles - LED Alert

## TIRE PRESSURE MONITORING DEVICE

Each tire installed on the apparatus shall be equipped with a tire pressure monitoring device. The device shall consist of a valve stem cap with an LED tire alert to indicate tire pressure conditions. The LED will flash when the tire drops 8 psi below the factory setting.

Dual Stutter Tone Air Horns - Commercial Chassis

## AIR HORNS

Dual stutter tone air horns shall be supplied.

Air Horn Mounting - Hood Sides

The dual air horns shall be mounted one (1) each side of the hood.

Air Horn Circuit Powered - Battery and Ignition

## AIR HORN IGNITION CONTROL

To eliminate inadvertent operation the chassis air horns shall be operable only when the battery selector and ignition switch are in the "ON" position.

Air Horn Control - Lanyard

## AIR HORN CONTROL SWITCH

The chassis air horns shall be controlled by a lanyard with a 'Y-chain'. The lanyard chain shall be mounted to the center of the overhead console within reach of both the driver and officer and shall terminate at the cab center.

Air/Elec Horn-Strg Wheel Cntrl - {Siren Switch Upgrade Here}

## AIR HORN OPERATION

The air horn and the electric horn shall be sounded simultaneously by depressing the horn button in the steering wheel.

Electronic Siren - Whelen - Model 295SLSA1 - Comm

## ELECTRONIC SIREN

A Whelen electronic siren control, model 295SLSA1 full feature with 17 Scan-Lock siren tones including Radio Rebroadcast, Public Address, Manual, Wail, Yelp, Air Horn, Electronic Mechanical Siren tones and Piercer tones and hard wired microphone, shall be provided.

Siren Speaker - Cast Products - Recess Mtd - Left Side

## SIREN SPEAKER

There shall be one (1) Cast Products polished aluminum 100 watt speaker provided. The speaker shall be recessed into the left (driver's) side of the front bumper outboard of the chassis frame rails.

Open Compartment Light - Red Flashing - Whelen OS LED

## COMPARTMENT OPEN LIGHT

A Red Open Compartment Flashing Light, Whelen OS Series LED shall be mounted in the center console. A chrome flange is to be supplied with the light.

This light is wired with a flasher to the power panel for completion to circuit on the body.

The light circuit shall be wired so that the light circuit is deactivated when the parking brakes of the apparatus are applied.

A label shall be applied adjacent to the light '**DOOR OPEN**'. Engine Maintenance Lights LED - Commercial

## ENGINE MAINTENANCE LIGHTS

Two (2) engine maintenance lights shall be supplied beneath the hood. These lights shall illuminate automatically when the hood is tilted.

Vehicle Data Recorder and Seat Belt Warning System

## VEHICLE DATA RECORDER

The Apparatus shall be equipped with a Class1 “Vehicle Data Recorder and Seat Belt Warning System” (VDR/SBW) that is connected to the power train CAN (Controller Area Network) bus consisting of transmission (TCM), engine control (ECM) and antilock brake (ABS) modules mounted on the apparatus. The VDR/SBW will function per NFPA 1901-2009 sections 4.11 (Vehicle Data Recorder) utilizing the power train’s J1939 data and 14.1.3.10 (Seat Belt Warning) using the Class1 “Seat Belt Input Module” for seat occupied and belt status information.

The VDR data shall be downloadable by USB cable to a computer using either Microsoft™ or Apple™ Operating Systems using Class 1/ O.E.M. supplied reporting software.

## SEAT BELT WARNING SYSTEM

There shall be a seat belt indicator system supplied in the cab. The indicator system shall indicate seat belt use for each individual seating position when the seat is occupied, the seat belt remains unfastened and the parking brake is released.

A display panel shall be supplied in the dash area. The panel shall have an audible indicators and a red light display to indicate that a seat belt has not been fastened.

Seat Belt Warning System Graphic Monitor Panel

## SEAT BELT WARNING SYSTEM - GRAPHIC MONITOR

Mounted in the overhead console in the driver's area the seat belt indicator system shall indicate seat belt use for each individual seating position when the seat is occupied, the seat belt remains unfastened and the parking brake is released.

The screen shall be a PCAP touch screen to recognize bare and gloved fingers, even when the display surface is wet. Integration with Class 1 seat belt monitoring module the screen shall be a bright, backlit display provides high contrast text and full color graphics for excellent sunlight readability with a rugged design for extreme environments.

Back-Up Camera System - Commercial Chassis

## BACKUP CAMERA

There shall be an ASA Audiovox video system provided on the apparatus.

Observation Monitor - 7" LCD - Waterproof

The color monitor shall be manufactured by ASA. The 7 inch color LCD monitor contains a water proof housing, circuit protection, backlit controls, integrated audio speaker, NTSC and PAL video signal compatible, 3-camera inputs, manual (pushbutton) or automatic (trigger) source selection, auto power on (standby) day / night brightness modes, on screen display (OSD) for AV source, picture adjustment and volume level, non-volatile memory for picture and volume

adjustment settings, anti-glare / anti-scratch protective lens, detachable sunshield. Monitor Mounting - Console Mounted - Driver

The monitor for the back-up camera shall be mounted on the forward portion of the center console, within view of the driver to aide in backing up the apparatus.

Camera - Color - Rear - High Performance - Black Housing

## REAR CAMERA - COLOR - HIGH PERFORMANCE

There shall be supplied a color, heavy duty high resolution observation camera.

Operation - Battery Powered

The back up camera system shall be powered with the battery power switch in the cab. Operation of the camera will be by the driver with the monitor controls.

Camera Mounting - Body Rear - Below Hosebed

The back up camera shall be mounted at the rear of the apparatus beneath the hosebed.

Fire Extinguisher and Hazard Triangle Kit

## ROAD SAFETY KIT

One (1) 2-1/2# ABC DOT Approved fire extinguisher shall be provided. The fire extinguisher shall be shipped loose with the chassis.

One (1) set of DOT approved hazard triangles shall be supplied with the chassis. They shall be stored in a plastic case and shipped loose with the chassis.

40 Amp - Battery Charger - ProMariner - Commercial

## BATTERY CHARGER

A PRO MARINER / ON BOARD SOLUTIONS advanced electronic 4-step battery charger/power supply with a 40 amp output shall be installed, under the driver's seat.

Since shoreline power is not always stable the charger shall be equipped with Auto-Ranging AC Input to automatically accept global voltages of 90 VAC to 270 VAC at 45-440 Hz.

Field Selectable - Use with lead/acid or gel batteries (AGM factory option). Select length of absorption charge cycle based on size of batteries.

In the 4-step charging system the charger will provide the following sequence.

Step 1: Fast Charge - Charger will deliver its maximum amperage rating to the connected batteries for the fastest charge (current regulation mode) until battery voltage is raised to 14.6V (lead acid factory setting). At this time, the ProTech will shift to step 2.

Step 2: Absorption Charge - Maximizes charge and holds voltage (voltage regulation mode) at 14.6V (lead acid factory setting) for 1 to 4 hours (selectable based on battery size), while letting the batteries determine the amount of amps they can accept. This mode creates activity in the batteries, reducing sulfate buildup, and conditions the batteries for an extended life. After the programmed 1 to 4 hours have elapsed, the ProTech will shift to step 3.

Step 3: Float Mode - A precision 13.3V (lead acid factory setting) finishing voltage that maintains each battery (step-down voltage regulation mode), which is perfect for short or long storage periods and will never overcharge your batteries. ProTech will deliver its full rated output for house loads including: lighting, electronics and pumps.

Step 4: Recycle - If there are very large loads on the battery while the charger is on, the unit will recycle to the first step, ensuring that batteries stay fully charged.

One-Year Warranty - Includes lifetime repair guarantee.

Certified to - UL Marine 1236/SA

Kussmaul 20 AMP - 120v - Super Auto Eject - Commercial

## SHORELINE AUTO-EJECT

A KUSSMAUL Super Auto Eject, model 091-55-20-120, with weatherproof cover shall be provided.

The Super Auto Eject is to be completely sealed to prevent internal contamination of the working components.

The internal switch arrangement of the Super Auto Eject shall be designed to close and open the 120-volt AC circuit after the mating connector is inserted and before the connector is removed. This design shall prevent arcing at the connector contacts to provide long life.

The electrical connection shall be provided as a 120-volt AC - 20 amp type using a NEMA 5-20P connector. Yellow Auto-Eject Cover

The Auto-Eject cover shall be yellow in color.

Plain Cover

The Auto-Eject cover shall be a Kussmaul 091-55.

Cab Exterior Mounted - Below the Driver's Door

The Auto Eject assembly shall be mounted on the exterior of the cab below the driver's door.

== Pump Module, 500 GPM Cmpt Mtd - Tanker - 4.001 ==

Pump Enclosure, PTO In Drvr's Side Frt Cmpt

## PUMP COMPARTMENT

The pump compartment shall be the driver's side front compartment of the apparatus body. The pump shall be mounted beneath the chassis immediately adjacent to the pump compartment.

The pump main intake and discharges shall be mounted on a subassembly with victaulic connections through the compartment into the pump and discharge areas. Where the piping extends through the pump compartment to the pump adequate sealing shall occur to prevent water from entering the compartment and allowing the compartment to flex without loads being imposed on the piping.

The pump manifold subassembly shall be a fabricated assembly of stainless steel tubing, angles and channels, which does not support the fire pump and or running boards. The pump compartment shall be mounted onto the chassis through rubber biscuits in a four point pattern to allow for a chassis frame twist.

Pump compartment, pump, plumbing and gauge panels shall be removable from the chassis in a single assembly. Stainless Valence Panels, Body

## STAINLESS VALENCE PANELS

A non-painted brushed stainless valence panel shall be mounted to the front of the apparatus body on the right and left hand sides. The panel shall close the gap caused by the emission systems and/or fuel tank extending behind the cab.

Pump Service Access Requirements - Cmpt PTO Pump

## SERVICE ACCESS REQUIREMENTS

It is the opinion that service access to the valves, gauges and controls are of the utmost importance. Special consideration shall be taken when evaluating the pump module design of the offerer. Pump panels that offer little to no access without the use of tools shall not be considered compliant with this requirement.

It is desired that the pump manifold assembly be mounted in the compartment immediately behind the rear of the cab on the driver's side. The assembly should be manufactured in a sub assembly so the entire manifold and valve assembly can be unbolted and removed from the compartment with ease.

Control Panel, Cmpt Mount - PTO Pump - Wolf

## PUMP CONTROL PANELS

All pump controls and gauges shall be located at the left (street) side of the apparatus inside the forward compartment and properly identified. The layout of the pump controls shall be ergonomically efficient and systematically organized. Each line pressure gauge shall be mounted on a 12 gauge stainless steel plate. Each gauge shall be mounted

individually and adjacent to the control for the valve being operated.

All drains shall be piped to a master drain manifold that has a single compartment drain that removes all drain water beneath the compartment. All valve controls shall be direct mounted locking handles.

Identification Labels - Metal Tags

## PUMP PANEL IDENTIFICATION TAGS

The identification tag for each valve shall be recessed in the face of the control handle. All discharges shall have color-coded metal identification tags, with each discharge having its own unique color scheme. Color-coding shall include the labeling of the outlet and the drain for each corresponding discharge.

Controls & Gauges, Compartment PTO Pump - Wolf

## CONTROLS AND GAUGES

The following shall be provided in the pump compartment in a neat and orderly fashion. The area shall include the following:

FRC In Control 400 Pressure Governor, Engine Monitor and Pressure Display

## PRESSURE GOVERNOR, MONITORING, and MASTER PRESSURE DISPLAY

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

The following continuous displays shall be provided:

Pump discharge; shown with four daylight bright LED digits more than 1/2" high Pump Intake; shown with four daylight bright LED digits more than 1/2" high Pressure / RPM setting; shown on a dot matrix message display

Pressure and RPM operating mode LEDs Throttle ready LED

Engine RPM; shown with four daylight bright LED digits more than 1/2" high Check engine and stop engine warning LEDs

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

Engine coolant temperature; shown on a dual color (green/red) LED bar graph display Transmission Temperature: shown on a dual color (green/red) LED bar graph display Battery voltage; shown on a dual color (green/red) LED bar graph display.

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

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

High Battery Voltage

Low Battery Voltage (Engine Off)

Low Battery Voltage (Engine Running) High Transmission Temperature

Low Engine Oil Pressure

High Engine Coolant Temperature Out of Water (visual alarm only)

No Engine Response (visual alarm only)

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

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

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

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

# 2-1/2" Pressure Gauges, 0-400 psig - English

## PRESSURE GAUGES

Each line pressure gauge shall be mounted immediately above the control for the corresponding valve. The individual line *pres*sure gauges for the discharges shall be 2-1/2" in diameter with white dial face gauges with black lettering and markings. The gauges shall be a compound style gauge with a vacuum/pressure range of 0 - 400 psig.

The gauges shall be fluid filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to -40 degrees F. The cases shall be temperature compensated with an internal breathing diaphragm to permit fully filled cases and to allow a rigid lens with a distortion free viewing area. The gauge accuracy for the gauge shall be plus or minus 2% mid-scale, plus or minus 3% balance, per

ANSI B40.1, Grade 1A.

To prevent internal freezing and to keep contaminants from entering the gauge, the stem and bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

All line pressure gauges shall be mounted adjacent to the corresponding discharge control tee handles. 2-1/2" Pressure Gauge LED Lighting

## LED GUAGE LIGHTING

The 2-1/2" pressure gauges shall be equipped with LED back lighting.

Pump Compartment Lighting

## PUMP COMPARTMENT LIGHTING

The pump operator's compartment shall be supplied with an incandescent light system. The lighting shall illuminate the pump area within the compartment and the ground in the pump operator's area.

All pump area lighting shall illuminate when the pump compartment doors are opened. Drain Discharges - 90° Ports

## DRAIN DISCHARGES

The 3/4 inch drain valves shall be equipped with 90-degree fittings to direct the discharge water beneath the pump module away from the pump operator's panel.

Switch, Air Horn Activation, Mtd PPanel, Push Button w/Lbl

## AIR HORN ACTIVATION SWITCH

A switch shall be located on the pump panel to activate the chassis air horn. The switch shall be a momentary pushbutton type switch with a red cover. The switch shall be supplied with the proper identification label.

Gauge, (1) Water Tank Level - FRC Tank Vision

## WATER TANK INDICATOR

Fire Research TankVision model WLA300-A00 tank indicator kit shall be installed. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on

nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a data link to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall place on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.

Gauge, (1) Water Tank Gauge, FRC Mini, Cab Dash

## CAB MOUNTED WATER TANK INDICATOR

Fire Research TankVision model WLA205-A00 miniature tank indicator shall be installed in the cab. The indicator shall show the volume of water in the tank on five (5) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be manufactured of aluminum and have a distinctive blue label.

The miniature indicator shall receive input information over a single wire from a Fire Research TankVision model WLA200-A00 tank primary indicator.

# Gauge, (1) Water Tank Gauge, Whelen "PSTANK2" LED, Rear

## HIGH VISIBILITY WATER TANK LEVEL INDICATOR

There shall be a Whelen PSTANK2 LED high visibility water level indicator supplied on the rear of the apparatus. The lights indicate the tank level as follows:

Full Green

3/4 Full Blue

1/2 Full Amber

1/4 Full Red

Pump, Darley, HM500, 250-500 GPM, PTO - PIB

## PUMP MANUFACTURER AND MODEL

The pump shall be a WS Darley, model HM500 pto driven single stage pump.

## PTO FIRE PUMP

Steel angle mounting brackets shall be provided. The pump shall have the ability to operate either with or opposite the direction of the engine rotation and have a gear ratio chosen by the pump manufacturers engineering department to provide optimum performance.

Power to drive the pump shall be provided by the same engine used to propel the apparatus. The pump shall be midship mounted and designed to operate through a PTO. Pump shift to be clearly labeled.

Pump casing shall be a fine grain cast iron, vertically split for greater resistance against leakage, with a minimum tensile strength of 30,000 psi.

Impeller shall be a high strength bronze alloy, splined to the pump shaft for precision fit, durability, and ease of maintenance.

Seal rings shall be renewable, double labyrinth, wrap around bronze type.

Shaft shall be splined to receive broached impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by engine, as well as ease of maintenance and repair.

Bearings provided shall be heavy duty, deep groove, radial-type ball bearings. Sleeve bearings on any portion of the pump or transmission shall be prohibited due to wear, deflection, and alignment concerns.

Pump drive shaft shall be precision ground, heat treated alloy steel, with a 1-3/8 spline. Gears shall be helical design, and shall be precision ground for quiet operation and extended life.

The pump transmission shall require no further lubrication beyond that provided by the intrinsic action of the gears, to reduce the likelihood of failure due to loss of auxiliary lubrication.

Pump Rating, 500 GPM

## PUMP RATING AND TEST REQUIREMENTS

The pump shall be of a size and design to mount on commercial and custom truck chassis, and have the capacity of 500 gallons per minute (U.S. GPM), NFPA 1901 rated performance. The entire pump shall be assembled, and tested at the pump manufacturer's factory.

Altitude Requirements, 0' to 2000 Feet Above Sea Level

## ALTITUDE REQUIREMENTS

The apparatus shall be designed to meet the specified rating at 0 to 2000' altitude.

Primer, Air Primer, Trident, On PTO Pump - PIB

## FIRE PUMP PRIMING SYSTEM

A Trident air operated priming system shall be installed. The unit shall be of all brass and stainless steel construction. Due to corrosion exposure no aluminum or vanes shall be used in the primer design. The primer shall be three-barrel design. The primer shall automatically drain when the panel control actuator is not in operation. The connection to the pump shall have a strainer.

Performance, Safety, and NFPA Compliance

The priming system shall be capable to a vertical lift to 22 inches of mercury and shall be fully compliant to applicable NFPA standards for vertical lift. The system shall create vacuum by using air from the chassis air brake system through a three-barrel multi-stage internal “venturi nozzles” within the primer body. The noise level during operation of the primer shall not exceed 75 Db.

Air Flow Requirements

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

Power Requirements

To reduce the electrical power requirements on the fire apparatus the priming system shall be air powered. The system shall not require annual tear-down and maintenance, an electric motor or solenoid, electrical wiring, lubrication, belt drive, or clutch assembly.

# Anode, Water Pump, Indicator Weep Hole

## ANODE SYSTEM

To reduce the effect of galvanic action the pump shall be equipped with two alloy (2) anodes. One anode is to be installed on the inlet (suction) side of the system and one anode is to be installed on the pressure (outlet) side of the system.

The anode brass cap is to be drilled with a 1/8" diameter hole to provide an indicator when the anode alloy element is to be replaced.

Intake Pressure Relief Valve, Suction, Akron, Automatic

## SUCTION PRESSURE RELIEF VALVE

An Akron 2.5" NPT, relief valve shall be installed on the suction side of the pump and be preset at 125 psig. The relief valve shall have a working range of 75 psig to 250 psig. The valve shall be of brass construction and include a stainless steel spring and rubber seat. The valve shall be normally closed and shall limit pressure in the pumping system. When

excessive intake pressures are received, the water shall be directed below the body.

The discharge side of the intake relief valve shall be plumbed to the right side below the running boards, away from but, visible to the pump operator, and shall terminate with an unthreaded pipe. The adjustment control shall be located behind the street side pump panel.

Third Party Test - TUV, US/Territories, Completed Apparatus Certificate

## THIRD PARTY PUMP TEST

The pump shall undergo third party pump test with line and/or low voltage requirements of NFPA 1901 prior to delivery of the completed apparatus. The TUV acceptance certificate shall be furnished with the apparatus on delivery.

Single Steamer Inlet, 4" NST Thread, L/S w/Strainer - HM-500

## LEFT SIDE STEAMER INLET

There shall be one (1) steamer inlet furnished on the left side pump panel. The suction inlet shall have 4" NST thread. The suction inlet shall have a removable strainer provided inside the external inlet.

Cap, 4" Long Handle - Chrome

## LARGE DIAMETER CAP

A four (4) inch chrome plated cap with long handles shall be supplied. The cap shall be capable of withstanding 500 PSI.

Suction Inlet, L/S, 2.5" Gated w/Drain - PTO - PIB

## SUCTION INTAKE - LEFT SIDE

A 2-1/2" independent gated suction intake shall be provided in the left side pump area. The intake shall be provided with a locking quarter-turn valve and control. The intake shall have a 3/4", drain valve with handle.

Intake Plug, (Qty) 2.5" w/Cap & Chain

One (1) 2-1/2" chrome plated rocker lug plug with chain shall be supplied.

#1 Discharge, Left Side - Side Operated

## LEFT SIDE DISCHARGE #1

The forward discharge on the left (street) side of the pump panel shall contain:

Discharge, Side, 2.5" - Straight - Manual Control

A 2-1/2" discharge shall be provided. The discharge outlet shall have a 2-1/2" quarter-turn swing-out valve. The discharge shall be chrome plated with 2-1/2" NST male threads.

Discharge Cap, (Qty) 2.5" Chrome Vented Rocker Lug w/Chain

## DISCHARGE CAP

One (1) chrome plated, Class 1, 2-1/2" rocker lug cap with lug vent and chain shall be furnished.

Hose lay, (1) Bed, 2.5" NST w/Swvl, Cmpt Top

## SINGLE COMPARTMENT TOP HOSEBED

One (1) hose lay bin, with a 2-1/2" NST outlet shall be provided. The hose lay shall be plumbed with 2-1/2" stainless steel high pressure pipe. A 2-1/2" quarter turn ball valve shall be used to control water flow. The outlet shall be equipped with a 2-1/2" polished stainless steel, 90-degree swivel with 2-1/2" male NST thread located in the hosebed so that hose may be removed from either side of the apparatus.

The hose lay bin shall be capable of carrying a minimum of two hundred feet (200') of 2-1/2" double jacketed hose with a pistol grip nozzle. The crosslay controls shall be mounted in the operator's area. A drain valve shall be plumbed into the discharge side the each valve.

The hose lay side wall shall be fabricated brushed stainless steel with a Dri-Dek floor for water drainage. Cover, Crosslay, Aluminum w/Vinyl Flaps

## CROSSLAY HOSEBED COVER

A .125" polished aluminum treadplate hinged cover shall be provided over the crosslay hosebeds, complete with full-length stainless steel piano hinge. Stops shall be provided to protect cab or other adjacent body components. The hinge shall be located on the forward section of the cover, closest to the chassis cab.

## VINYL FLAPS

The aluminum treadplate crosslay cover shall be supplied with weighted vinyl end flaps. Each flap shall have a means of securing the flap to prevent hose from falling off the truck.

Vinyl End Flap Color, Crosslay, Vinyl, Midnight Black

The vinyl crosslay end flaps shall be Midnight Black in color. Each flap shall have a means of securing the flap to prevent hose from falling off the truck.

Ball Valves, Elkhart, Brass

## ELKHART BALL VALVES

All discharge ball valves shall be Elkhart heavy duty swing out valve with stainless steel ball unless specified otherwise.

Piping, Tank To Pump, 3" w/3" Air Op Vlv - PTO Pump - PIB

## TANK TO PUMP

The tank to pump piping shall be capable of delivering water to the pump at a rate of five hundred (500) gallons per minute. This flow shall be sustained while pumping to a minimum of 80% of the certified tank capacity with the apparatus on level ground.

The tank to pump line shall run from the pump to the water tank and down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing. The tank to pump line shall be 3" I.D. piping with a 3" ball valve.

A control switch shall be located in the pump operator's area to activate an air cylinder to open and close the tank to pump valve.

A 5-7 psi pressure switch shall be installed on the intake manifold with an electric over air solenoid valve wired with the required electrical circuit(s) to close the pump to tank cylinder and valve when pressure is present on the intake to prevent the unintentional back filling of the water tank through the line.

Tank Refill, 2" Line w/Electric Control - PTO Pump - PIB

## TANK REFILL

A 2" tank refill line shall be provided using a 2" quarter-turn full flow ball valve controlled from the pump operator's panel with an electric control mounted in the pump area. The tank refill shall be plumbed with high pressure flexible piping and high pressure flexible piping stainless steel couplings.

Heat Exchanger Line, Non-Gated, Custom

## HEAT EXCHANGER DISCHARGE

A discharge line shall be installed to provide water from the fire pump to the chassis supplied heat exchanger to assist in engine cooling during pumping operations. The heat exchanger line shall be returned to the water tank through a check valve.

PTO, Heavy Duty 10 Bolt and Driveline For PTO Driven Pump

## PTO AND DRIVELINE

A Heavy-Duty 10 bolt PTO and driveline shall be provided for the pump. A switch to control the operation of the PTO shall be installed in the cab in a location convenient to the driver.

== Tanker 3000 Gallon - Tandem Axle Wolf - 4.001 ==

Water Tank Cnstrctn, Poly w/Tnk Lid, FillTwr, Ovrflw

## WATER TANK CONSTRUCTION

The tank shall have a rated capacity in U.S. gallons, complete with lifetime warranty. The tank manufacturer shall mark the tank and furnish notice that indicates proof of warranty. The purpose of the notice is to inform department personnel who store or use the tank that the unit is under warranty.

The tank shall be constructed of 1/2” thick Polyprene & Mac226 sheet stock. This material shall be non-corrosive stress relieved thermoplastic, white in color and UV stabilized for maximum protection. The tank shall be of a special configuration and is so designed to be completely independent of the body and compartments. All exterior tank joints and seems shall be extrusion welded and/or contain the Bent Edge™ and tested for maximum strength and integrity. The top

of the tank is fitted with removable lifting eyes designed with a 3-to-1 safety factor to facilitate easy removal.

The transverse and longitudinal swash partitions shall be manufactured of Polyprene & Mac226 material. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow and meet NFPA rules. All swash partitions interlock with one another

and are welded to each other as well as to the walls and floor of the tank.

## TANK SUMP AND CONNECTIONS

There shall be one (1) sump standard per tank. The sump shall be constructed of white Polyprene & Mac226 and be located in the left front corner of the tank, unless specified otherwise. On all tanks that require a front suction, a schedule 40 polypropylene pipe shall be installed that will incorporate a dip tube from the front of the tank to the sump location. The sump shall have a minimum 3” FNPT threaded outlet on the bottom for a drain plug. This shall be used as a

combination clean out and drain. All tanks shall have an anti-swirl plate located above the dip tube.

There will be two (2) standard tank outlets: one for tank to sump suction line, and one for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates of up to 1,000 GPM. The addition of rear suction fittings, nurse valve fittings, dump valve fittings, and through tank sleeves to accommodate rear discharge piping must be specified. All auxiliary outlets and inlets

must meet N.F.P.A. 1900 guidelines in effect at the time of manufacture.

Tank Mounting, Cradle Mtd, 8" x 8" x 4" x .250"

## TANK MOUNTING

A tank mounting cradle shall be supplied. The tank mounting cradle shall consist of a minimum of seven (7) crossmembers and two (2) full tank length longitudinal members. The tank shall rest on the tank mounting sub-frame, and shall be insulated from the sub-frame with a 2-1/2" wide rubber insulator. The tank shall sit cradle-mounted using four (4) corner angles of 8" x 8" x 4" x .250" welded directly to the tank sub-frame. The angles shall keep the tank from shifting left to right or front to rear. The tank is designed on the free-floating suspension principal and shall not require the use of hold downs. The tank shall be completely removable without disturbing or dismantling the apparatus body structure. The hosebed cross-braces shall act as water tank retainers. The water tank cradle shall be designed to be completely independent of the apparatus body to eliminate torsional stress loading in the body. No exception will be

permitted to the tank mounting requirements. Tank Cradle - Painted to Match Axles Color

The tank cradle shall be finish painted to match the chassis axles.

Dump Vlv, Rr Ctr, 10" Sq Newton SS, AirOprtd w/Cab Control & Swivel Chute

## REAR QUICK DUMP W/ SWIVEL CHUTE

A 10" Newton stainless steel air operated, quick dump valve shall be installed at the rear center of the water tank. The dump valve shall be controlled by a switch in the cab. The dump valve shall also be operable from a switch at the rear of the vehicle.

A Newton stainless steel swivel chute shall be provided on the air operated dump valve. The swivel shall extend 29" from the rear center body panel. When extended to either side 90° the chute shall be capable of extending 16" from the side of the body. Full extension of the chute to the rear shall allow for 87" to the end of the chute from the rear center panel.

Chute, Telescoping Extension, 36" S/S, Mtd w/S/S Bolts

There shall be a 36" stainless steel telescoping extension chute furnished on the dump valve specified. The telescoping extension chute shall be manually operated and shall have a retention device to hold the chute in the closed position for travel. The telescoping chute shall be attached to the dump valve with stainless steel bolts.

Dump Valve Controls, Parking Brake Interface

## DUMP VALVE PARKING BRAKE INTERFACE

The dump valve control shall be interfaced with the parking brake to prevent operation of the dump valve if the parking brake is not applied.

Body Design and Construction, Tanker, Stainless Steel

## PURCHASE INTENT

The apparatus being purchased is expected to have an 18 to 20 year service life. Based on this requirement, the department is extremely concerned that the apparatus remains structurally sound and the outward appearance remains in a “like new” condition, with minimal maintenance and upkeep, throughout the service life of the apparatus. Aluminum apparatus bodies and differing construction designs will be reviewed and considered only if the builder / manufacture will meet the same “Body Structural Warranty” requirements specified in this bid document. Regardless of materials used or design, the entire body design shall be of a bolted design to allow for ease of removal for repair or replacement, without cutting welds.

## APPARATUS BODY DESIGN AND CONSTRUCTION

The apparatus body shall be built of stainless steel and shall be designed for Fire Service use only. The body design shall be fully tested with proven engineering and test techniques such as finite element analysis, stress coating, and strain gauging shall have been performed with special attention given to fatigue life and structural integrity of compartments and body support system. The body design shall have been supervised by mechanical engineer with a minimum bachelor's degree in mechanical engineering from an accredited university. All welding of body support system shall be accomplished by welders certified to the standards of the American Welding Society for the metals being used. The body

shall be constructed in accordance with current NFPA requirements.

All metal work shall be free of sharp edges, objects or corners. Body width shall be 100" and shall be completely modular in design, allowing transfer of body components to a new chassis in the event of an accident or wear. Body components shall be removable from the chassis without cutting or bending. The modular design shall also facilitate ease of repair or

replacement of major or minor body parts.

The entire apparatus body shall be precision machined fabricated bolted construction, properly reinforced with integral flanges eliminating the need for add-on structural shapes. Stainless button head recessed alien head bolts and stainless aircraft style "ESNA" nuts shall be applied with a torque wrench set with proper torque rating for each fastener. This type of construction shall greatly enhance the strength, ease of parts replacement in the event of damage and future modifications. Wherever possible, body bolts shall be hidden from plain view for appearance and ease of apparatus

cleaning.

## FRONT OF BODY CONSTRUCTION

Front body support system shall be an integral design with .250" thick steel deep section cross member cross the top of the chassis frame. The deep section cross member shall be attached to the right side and the left side 10 gauge lower front compartment weldments with eight (8) Grade 8 .375" diameter bolts on each side of the apparatus.

The front cross member shall be attached to the chassis by means of rubber mounting system with limited travel. The lower portion of this rubber mounting system shall be an integral part of the console outriggers. This design allows for maximum chassis flexing without undue stress transfer to the apparatus body.

## REAR OF BODY CONSTRUCTION

Rear body support system shall consist of an interwoven dual .625" thick steel tow eye attachments, a single transverse 4" x 4" x .375" thick structural angle, and dual laminated .188" thick rear compartment and tailboard support tapered angles on each side of apparatus.

Two (2) tow eyes with an eye diameter of not less than 3.5" shall be attached to the frame assembly. The tow eyes shall be fabricated of .625" thick steel.

## TOP OF BODY CONSTRUCTION

The upper body shall be constructed of 12 and 14-gauge prime stainless steel. Interior and unexposed stainless steel parts shall be #2B finish and exterior stainless steel parts that are visible shall have #4B finish. For added strength the top of the side body panels shall be triple flanged out 2" and down 1".

## MODULAR BODY REQUIREMENTS

All body panels are to be laser cut on a CAM controlled laser to ensure accuracy (+/- .010"). This shall greatly enhance assembly and matching of repair parts. The entire body shall be fabricated using precision holding fixtures to ensure accurate dimensions. The body assembly shall be securely bolted to the sub-frame utilizing steel certified Grade 8 bolts.

The sub-frame shall be bolted to the chassis frame utilizing 2" certified Grade 8 bolts. A minimum of four (4) bolts shall be used per sub-frame member. There shall be no welding of components to the chassis frame.

Pop rivets or metal screws shall not be used in any part of the structural body build up. All fasteners shall be stainless steel bolts with self-locking nuts of the proper size and strength for the required application.

Major body components shall consist of right and left body sides, and rear facing compartments. The pump module is to be completely separate from the main body to prevent damage due to flexing.

Compartment Interior Finish

## COMPARTMENT INTERIOR FINISH

For better interior visibility, to reflect light better, ease of maintenance and prevent the masking of poor welds and questionable workmanship the interior of the body compartments shall remain uncoated.

Brushed Stainless Compartment Roof - Not a Stepping Surface

## EXTERIOR ROOF FINISH

The top of the compartments shall be brushed stainless steel. The roof shall contain 'Not a Stepping Surface' labeling.

Rear Tailboard, 12", LaserGrip Stainless Steel

## REAR TAILBOARD

A rear tailboard 12" deep shall be provided at the rear from "Laser Grip" stainless steel meeting NFPA 1901 step requirements. The tailboard shall provide protection for the side body compartments and shall provide mounting for the rear ICC marker lights. It shall be bolted to the rear support structure.

Frame Extension, Rear

## CHASSIS FRAME EXTENSIONS

There shall be a rear chassis drop frame extension to provide frame support for the rear of the apparatus body. This extension is to be bolted to the truck chassis as an integral part of the truck frame assembly and is to include rear tow eyes, crossmember and tailboard reinforcement.

Rear Frame Extension - Painted to Match Frame Color

The rear frame extension shall be finish painted to match the chassis frame.

Ext Compartment Design and Construction, Modular, Bolted

## COMPARTMENT DESIGN AND CONSTRUCTION

All compartments shall be manufactured from 12-gauge stainless steel with the vertical front and rear corner walls from 14-gauge, shall be of sweep out design and shall be bolted together. Stainless recessed round head bolts and stainless aircraft style "ESNA" nuts shall be applied with proper torque rating for each fastener. This type of construction shall greatly enhance the strength and ease of parts replacement in the event of damage and future modifications. Wherever possible, body bolts shall be hidden from plain view for appearance and ease of apparatus cleaning.

Compartment Ventilation w/Filtration

## COMPARTMENT VENTILATION

Each compartment shall be provided with a laser cut louver to provide adequate ventilation.

## VENT FILTRATION

There shall be filters provided for compartments L1, L3, R1 and R3. The protective louver covering the filer shall be removable to allow for filter changing.

The filter shall be 100% virgin nylon fiber in an open web design that is USDA approved. The filter shall be chemically treated with Dimethyl Benzyl Ammonium Saccharinate to aid in the reduction of bacteria and fungi.

Water Tank Capacity, T-Tank, 3000 US Gallons - TA 76" HB

## WATER TANK CAPACITY

The water tank shall be "T" shaped, with the upper portion of the tank being wider than the base and shall have a maximum capacity of 3000 US gallons.

Tank Fill Tower, 10" x 14", w/6" Vent

## TANK LID & FILL TOWER

The tank shall have a combination vent and fill tower. The fill tower shall be constructed of 1/2” thick Polyprene & Mac226 and shall be a minimum dimension of 10”x 14” outer perimeter. The tower shall be located in the center front of the tank unless otherwise specified by the purchaser. The tower shall have a 1/4” thick removable Polyprene & Mac226; screen and a Polyprene & Mac226 hinged-type cover. Inside the fill tower, there shall be a combination vent overflow pipe. The vent overflow shall be a minimum of schedule 40 pipe with a minimum ID of 6” that is designed to run through the tank, and shall be piped behind the rear axle beneath the tank.

The tank cover shall be constructed of recessed 1/2” thick Polyprene & Mac226, stress relieved, UV stabilized material. A minimum of two lifting dowels shall be drilled and tapped to accommodate the lifting eyes.

## OVERFLOW AND VENT PIPE

The fill tower shall be fitted with an integral 6" ID, Schedule 40 PVC 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 beneath the chassis.

Cubic Ft, Body 89, 218" OAL

## BODY MODULE CAPACITIES

The total capacity of the body module exterior compartments shall be 89 cubic feet. The body shall have an overall length of 218".

Direct Tank Fill, Left Rear

## LEFT REAR DIRECT TANK FILL

1/4 Turn Valve - 2-1/2"

The tank fill shall be fitted with a swing out 1/4 turn 2-1/2" valve that is mounted to the tank with the valve exposed on the rear of the apparatus body. The valve shall be equipped with a 30-degree drop 2-1/2" NST female swivel inlet with screen.

Direct Control - Self Locking on Valve

A self locking direct control shall be provided on the valve.

Intake Plug, (Qty) 2.5" w/Cap & Chain

One (1) 2-1/2" chrome plated rocker lug plug with chain shall be supplied.

Direct Tank Fill, Right Rear

## RIGHT REAR DIRECT TANK FILL

1/4 Turn Valve - 2-1/2"

The tank fill shall be fitted with a swing out 1/4 turn 2-1/2" valve that is mounted to the tank with the valve exposed on the rear of the apparatus body. The valve shall be equipped with a 30-degree drop 2-1/2" NST female swivel inlet with

screen.

Direct Control - Self Locking on Valve

A self locking direct control shall be provided on the valve.

Intake Plug, (Qty) 2.5" w/Cap & Chain

One (1) 2-1/2" chrome plated rocker lug plug with chain shall be supplied. Hosebed, Left Low, Low Right Side Tanker Body - No Tunnel

Hosebed, S/S w/21.75" Extnd Sds/Rmvbl HD Ext Alm Flrbrds

## APPARATUS BODY HOSEBED WITH 21-3/4" SIDES

The hosebed shall be constructed in such a manner that will prevent damage to fire hose. The hosebed shall comply with the current NFPA requirements. The interior of the hosebed shall be free of projections such as nuts, sharp edges or brackets that may damage hose. The hosebed and walls shall be manufactured from stainless steel. No exceptions to

this requirement are allowed.

An aluminum extrusion shall be installed over the rear opening of the hosebed to protect the body from wear. The hosebed bottom shall be fitted with removable slatted, ribbed 6" heavy-duty extruded aluminum floorboards.

Dividers, (Qty) Hosebed, Adjustable, Smth Alum w/Radius Crnr

## ADJUSTABLE HOSE BED DIVIDERS

One (1) adjustable hosebed dividers shall be provided. Each divider shall be fabricated from .250" thick smooth aluminum plate, 5052-H32 alloy. The rear end of each divider shall have a 3" radius corner and shall be sanded and deburred to prevent damage to hose.

There shall be two hand hold openings provided. One (1) at the rear in a vertical position and one (1) approximately 24 inches in from the rear in a horizontal position.

Hosebed Cover, Black

## HOSEBED COVER

A black vinyl hosebed cover shall be provided and designed to cover the entire main hosebed area. The cover shall be installed with "stretch cord type" fasteners along each side of the hosebed. A sand filled flap shall be incorporated into the rear edge of the cover.

The hosebed cover rear flap shall have a positive locking device to meet the requirements of NFPA. 136"/89", Ext Compts, Left Side, 51"/31"/33" W x 24" D, Low Side

## LEFT SIDE COMPARTMENT DIMENSIONS

**FORWARD OF WHEEL WELL**

There shall be one (1) low side, rescue style compartment ahead of the rear wheels at the front of the apparatus body. It shall have approximate dimensions of 51" wide x 30" high x 24" deep. This compartment shall house the pump in the box if the apparatus is so equipped.

There shall be a second low side, rescue style compartment ahead of the rear wheels. It shall have approximate dimensions of 31" wide x 30" high x 24" deep.

## REAR OF WHEEL WELL

There shall be one (1) low side, rescue style compartment behind the rear wheels. It shall have approximate dimensions of 33" wide x 30" high x 24" deep.

Roll Up Doors, L/S, Painted - Tndm Bdy - SSNNS

## ROLLUP DOOR CONSTRUCTION - LEFT SIDE

All left side compartments shall be provided with painted roll up doors.

Door Latches, L/S, Non-Locking Lift Bar w/Door Ajar Switch

The left side door latches shall be non-locking stainless steel lift bars and shall be provided with a magnetic door ajar switch system.

Wheel Area, Tandem Axle, - Rr SCBA Tubes

## FENDER SIDE SKIRTS

There shall be stainless steel fender side skirts located in the area of the rear wheels. The design of the fender sides shall be a minimal length to provide maximum compartment space in the apparatus.

Fenderettes and Wheel Well Liners - Stainless

## BODY FENDERS - POLISHED

The apparatus body fenders shall be made from 16 gauge stainless steel and shall be rolled, die stamped and fully removable. The stainless steel fenders and stainless fender liners shall be fastened with stainless bolts and ESNA nuts to the outer fender panel.

Mud Flaps, Rear

## REAR AXLE MUD FLAPS

Two (2) black, anti-sail, mud flaps shall be mounted behind the rear wheels.

SCBA Tubes, (8) Rear Wheelwell, (4) L/S - (4) R/S, Tndm Axle

## SCBA BOTTLE COMPARTMENTS

Eight (8) SCBA bottle tube compartments shall be provided, four (4) in each side rear wheel well area. Each compartment shall be constructed of gray roto molded storage compartment to provide SCBA scuff protection. A door seal shall be provided at the perimeter of the SCBA compartment. The doors shall be stainless steel with a stainless finger latch.

SCBA Bottle Retention Strap(s)

## SCBA BOTTLE RETENTION STRAP

One (1) one-inch (1") wide loop of red webbing shall be installed in each SCBA compartment to prevent the bottle from sliding out of the compartment in the event the door is not latched for travel. The loop shall be mounted, centered in the compartment and shall hang within one-inch (1") of the compartment floor to allow the bottle to pass by the strap when the bottle is placed in the compartment. The strap shall loop over the valve.

136"/89", Ext Compts, R/S, 41"/41"/33" W x 24" D, Low Side

## RIGHT SIDE COMPARTMENT DIMENSIONS

**FORWARD OF WHEEL WELL**

There shall be one (1) low side, rescue style compartment ahead of the rear wheels at the front of the apparatus body. It shall have approximate dimensions of 41" wide x 30" high x 24" deep.

There shall be a second low side, rescue style compartment ahead of the rear wheels. It shall have approximate dimensions of 41" wide x 30" high x 24" deep.

## REAR OF WHEEL WELL

There shall be one (1) low side, rescue style compartment behind the rear wheels. It shall have approximate dimensions of 33" wide x 30" high x 24" deep.

Roll Up Doors, R/S, Painted - Tndm Bdy - SSNNS

## ROLLUP DOOR CONSTRUCTION - RIGHT SIDE

All right side compartments shall be provided with painted roll up doors.

Door Latches, R/S, Non-Locking Lift Bar w/Door Ajar Switch

The right side door latches shall be non-locking stainless steel lift bars and shall be provided with a magnetic door ajar switch system.

Rear Tanker Body - Double Low Sides

Chevron, Diamond Grade, Rear Body NFPA, 6" - Tanker - Double Low Sides

## REAR BODY DIAMOND GRADE CHEVRON STRIPING

The rear-facing vertical surfaces of the rear taillight panels and the area below the horizontal step, visible from the rear of the apparatus, shall be equipped with six (6) inch wide diamond grade retro reflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees.

Chevron Color - Red and Florescent Green Reflective

Each stripe in the chevron shall be a single color alternating between red (3M #983-72) and florescent green (3M # 983-23).

Rubrail, Body, LED Strip, Armor Guard, Warning/Ground - Long Body - 14' Rescue

## BODY RUBRAIL / LIGHTING SYSTEM

The apparatus body shall have a bolt on extruded aluminum rub rail affixed to the side beneath each door area. Each rub rail shall be attached to the apparatus body with stand off spacers made from 1" diameter UHMW Polyethylene bar stock.

The rubrail shall be designed with an integral white LED strip light. The white LED shall be downward facing and activated with the ground light circuit.

The rubrail design shall also include a red LED strip light. The red LED strip light shall face outward and activate as a red flashing warning light when the warning lights are active.

Painted Apparatus Body - Hi Low Bodies

## STAINLESS STEEL APPARATUS BODY PAINTED

The following apparatus body components shall be painted job color.

Painted Apparatus Body, Wheel Well Fender Panels The rear wheel fender panels.

Painted Apparatus Body, Front Body Corner Panels The front body corner panels.

Painted Apparatus Body, Rear Body Corner Panels The rear body corner panels.

Painted Hosebd Ext Side Walls - Sd Stk Aerial & Low Bodies

The exterior surface of the hosebed side walls / coffin compartment.

Lights, Compartment, LED Strip, Armor Protected - White/Red

## APPARATUS COMPARTMENT LIGHTING

Two (2) LED, armor protected, strip lights shall be provided one (1) each side of the compartment at the door frame for each body compartment. Each body door shall have an automatic compartment light switch.

There shall be a white/red color selector switch in the cab that controls the color of this lighting. Rear - Center - No RR1 - No RR2 - Tankers

Step, Intermediate, mid position, Laser Grip, 8" Deep x Full Width

## INTERMEDIATE REAR STEP - UPPER FULL WIDTH

An NFPA #1901 compliant "Laser Grip" rear step shall be located just above the rear compartment and span the width of the hosebed. It shall be no less than 8" in depth and fabricated of stainless steel.

Lights, Rear Body, LED Strip Intermediate Step, Activate w/Parking Brk

## REAR WORK LIGHTS - LED

A recess mounted LED strip light with integral guard shall be supplied under the rear intermediate step.

The lights shall be shall be switched on when the parking brake is set and the apparatus is running with the master battery switch in the "ON" position.

Handrail, Rear, 69" Horizontal Hosebed

## REAR HORIZONTAL HANDRAIL

There shall be a ribbed, 1-1/4" diameter, aluminum handrail supplied and installed at rear of the apparatus body horizontally along the rear edge of the hosebed area.

Lighting, Rear Horizontal Handrails

## LIGHTING, REAR HANDRAIL

The horizontal handrail adjacent to the hosebed shall contain integrated LED lighting. The lighting shall be integrated into the grab bar, directed toward the hosebed. The assembly shall illuminated the same time as the ground lights.

Lighting, White Color

The LED handrail lighting shall be white in color.

Rear - Left Side - Egress Steps - two (2) folding step, lower (1) fixed step

Step, Folding, (1) Mounted Left Rear Upper Hosebed Position

## FOLDING STEPS

There shall be one (1) folding step installed on the left rear of the body in the upper hosebed position. Standard Folding Step

Step, Folding, (1) Mounted Left Rear Upper Position

## FOLDING STEPS

There shall be one (1) folding step installed on the left rear of the body in the upper position. Standard Folding Step

Steps, Intermediate, (1) Lower, Left Corner, Laser Grip, 8" Deep

## INTERMEDIATE REAR STEPS - LOWER LEFT SIDE

There shall be a rear corner step, on the left side, located adjacent to the rear compartment and shall be no less than 8" in depth and fabricated of "Laser Grip" stainless steel to meet NFPA #1901 step requirements.

Handrail, Rear Left Side, 24" Vertical

## REAR LEFT SIDE VERTICAL HANDRAIL

There shall be a 1-1/4" diameter, aluminum handrail supplied and installed on the upper left hand side of the body inset at rear of the apparatus body.

Rear - Right Side - Egress Steps - upper (2) folding step, lower (1) fixed step

Step, Folding, (1) Mounted Right Rear Hosebed Upper Position

## FOLDING STEPS

There shall be one (1) folding step installed on the right rear of the body in the upper hosebed position. Standard Folding Step

Step, Folding, (1) Mounted Right Rear Upper Position

## FOLDING STEPS

There shall be one (1) folding step installed on the right rear of the body in the upper position. Standard Folding Step

Steps, Intermediate, (1) Lower, Right Corner, Laser Grip, 8" Deep

## INTERMEDIATE REAR STEPS - LOWER RIGHT SIDE

There shall be a rear corner step, on the right side, located adjacent to the rear compartment and shall be no less than 8" in depth and fabricated of "Laser Grip" stainless steel to meet NFPA #1901 step requirements.

Handrail, Rear Right Side, 24" Vertical

## REAR RIGHT SIDE VERTICAL HANDRAIL

There shall be a 1-1/4" diameter, aluminum handrail supplied and installed on the upper right hand side of the body inset at rear of the apparatus body.

Tray, (3) 10' Suction, L/S, Vert Tndm - High - Low Sd Bdy

## HARD SUCTION TRAYS - LEFT SIDE

Three (3) aluminum hard suction trays shall be installed on the left side of the apparatus.

Each tray shall be designed to accommodate from three to six inch hard suction hose in a ten foot length and employ a design without fasteners or clamps to hold the suction hose in place in the tray.

The trays shall be mounted one over the other in a vertical tandem arrangement with the upper tray positioned so that and installed suction hose is no higher than the top of the hosebed sides.

Folding Tank Rack, Zico, Electric, Port Tank System, R/S

## PORTABLE TANK STORAGE

An electric portable tank storage rack shall be installed on the right side of the apparatus body to provide tank storage above the right side compartments.

The Ziamatic "Quic-Lift" tank rack shall be of the dual electric actuator design. The tank rack assembly shall be located in the center of the body, above the rear wheel well area, with a weatherproof control switch provided on the right side pump panel in full view of the rack.

Folding Tank Rack Cover, Painted Aluminum

## FOLDING TANK RACK COVER

An aluminum cover shall be fabricated for the Zico folding tank rack. The cover shall enclose the top and outer exposed side of the folding tank rack only. The cover shall be painted to match the color of the apparatus.

No Folding Tank Required

Floodlight, Maxxima, (1) MWL-36, 2100 Lumens, Mnt Frt R/S Hsbd

## HOSEBED FLOODLIGHT

One (1) Maxxima MWL-36, 2100 Lumen LED hosebed floodlight with swivel and folding handle shall be mounted at the front right corner of the hosebed. There shall be a weather resistant switch on the lighthead. The light shall be activated with the parking brake.

Body Side Scene Lights Required - Pumper / Rescue

## BODY SIDE SCENE LIGHTS

There shall be body side scene lights installed as high as possible and spread out as far as possible on both sides of the apparatus body.

Scene Lights, TecNiq K90 Series LED 7" x 9"

The lighting positions shall be equipped with TecNiq K90 Series scene lights. The scene light shall incorporate 18 5000K white LEDs, a clear lens for maximum output. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The coated PC board and sealed lens/reflector assembly shall provide additional protection against environmental elements. The solid state warning light shall be vibration resistant and designed with fully sealed submersible electronics. The K90 is rated IP68 for dust and water resistance. The K5000 shall have 5000 lumens.

TecNiq Inc. extends a Lifetime Limited Warranty to the original purchaser that the TecNiq Inc. Lamp is free from defects in workmanship and/or materials only. See the TecNiq warranty document for details.

Driver's Scene Light Switch

The scene lights shall be operated by a switch located in the driver's area of the cab.

Body Rear Scene Lights Required

## BODY REAR SCENE LIGHTS

There shall be rear scene lights installed as high as possible on both sides of the rear of the apparatus body.

Scene Lights, TecNiq K90 Series LED 7" x 9"

The lighting positions shall be equipped with TecNiq K90 Series scene lights. The scene light shall incorporate 18 5000K white LEDs, a clear lens for maximum output. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The coated PC board and sealed lens/reflector assembly shall provide additional protection against environmental elements. The solid state warning light shall be vibration resistant and designed with fully sealed submersible electronics. The K90 is rated IP68 for dust and water resistance. The K5000 shall have 5000 lumens.

TecNiq Inc. extends a Lifetime Limited Warranty to the original purchaser that the TecNiq Inc. Lamp is free from defects in workmanship and/or materials only. See the TecNiq warranty document for details.

Rear Scene Light Switch w/Pkg Brk Over-Ride

The rear scene lights shall be operated by a switch located beneath the left rear step. If the scene light is left in the 'ON' position the lights shall automatically turn off when the truck is parking brake is released.

Driver's Scene Light Switch

The scene lights shall be operated by a switch located in the driver's area of the cab. Bdy Sd Ldr Grp L/S or R/S- 10-Fold, 14-Roof, 24-2 opt 35-3

Electrical System, 12V, Body, Multiplexed w/Circuit Brkr Pnl

## APPARATUS BODY ELECTRICAL SYSTEM

All body electrical shall conform to NFPA 1901 latest edition standards. The apparatus shall be equipped with a heavy-duty 12-volt negative ground system.

All 12-volt apparatus wiring shall pass through a heavy duty power disconnect solenoid. The 12-volt control of the power disconnect switch is to be triggered by the Master Battery Disconnect.

The apparatus shall be equipped with a Class1 Es-Key Management System for complete control of the electrical system devices.

The right rear compartment shall house a relay based Power Distribution Module (PDM). The PDM shall contain 12 standard automotive relays. Each relay's output shall be monitored by the Es-Key system to provide true on/off feedback. Each output shall be capable of handling up to 30 amps and be protected by an automatic circuit breaker. The PDM shall be mounted on a removable panel in the left rear compartment with sufficient harness length to allow a technician the ability to remove the PDM and place it on a compartment shelf for diagnostics and service.

All wiring shall be color-coded and function coded to assist the technician in servicing the electrical system. All circuits shall be divided and balanced for proper load distribution. Where possible, wiring shall be routed in looms as a single harness. Heat resistant convoluted loom shall be used. Only solderless, insulated crimp automotive electrical connectors shall be used.

Body - LED - ICC Lighting with Body Side Clearance LED & Reflector

## APPARATUS ICC MARKER LIGHTING

Two (2) amber Whelen OS Series LED side clearance lights shall be supplied, one (1) each side mounted ahead of the forward body compartment.

Five (5) red LED clearance lights shall be supplied, mounted in the rear of the apparatus. Two (2) red LED clearance lights shall be supplied, mounted facing the side of the apparatus.

A red diamond shaped reflector shall be mounted on each lower rear corner of the apparatus body. ICC lighting utilized and lighting positions shall be in conformance with FMVSS 108.

Rear Stop/Tail/Turn/Reverse with NFPA Lower Zone C Warning - Techniq ICC Lights

## REAR STOP/TAIL/TURN/BACKUP LIGHTS

There shall be a light housing provided on the rear of the apparatus that includes the stop/tail/turn and lower zone C warning lights.

The rear of the apparatus shall be equipped with TecNiq High Output K60 Series light heads.

* The top light in the assembly shall be a red LED with red lens stop/tail light.
* The upper middle light set shall be an amber LED lamp with an amber lens with an arrow mask.
* The lower middle lights shall be white LED backup lamps with clear lens.
* The lower lights shall be NFPA warning lamps as specified for lower zone C.

The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The coated PC board and sealed lens/reflector assembly shall provide additional protection against environmental elements. The solid state warning light shall be vibration resistant and designed with fully sealed submersible electronics. The K60 is rated IP68 for dust and water resistance.

TecNiq Inc. extends a Lifetime Limited Warranty to the original purchaser that the TecNiq Inc. Lamp is free from defects in workmanship and/or materials only. See the TecNiq warranty document for details.

Back Up Alarm

## BACK-UP ALARM

A solid state electronic backup alarm shall be installed on the rear of the apparatus and wired to the backup light circuit.

License Plate Bracket w/LED Light

One (1) license plate mounting and LED light shall be provided. The light and bracket shall be located on the rear of the apparatus.

Rear Warning - Zone C Lower, Power Rear, TecNiq - LED

## REAR LOWER LEVEL WARNING LIGHTS

Two (2) TecNiq High Output Red LED Flashing Warning Lights model K60 lighthead(s) shall be provided. The lightheads shall be surface mounted and shall fit standard mounting holes secured with four (4) stainless steel screws. Wiring shall extend from the lighthead back. The lightheads shall be fitted with high efficiency optics and a permanently affixed lens to provide a warning light beam across all angles. The lightheads shall be fitted with AutoSync, a feature that will automatically synchronize the flash patterns of the warning lights without additional wiring. Fully sealed, submersible electronics shall be furnished on each lighthead. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The solid state warning light shall be vibration resistant and designed with fully sealed submersible electronics. The K60 is rated IP68 for dust and water resistance.

TecNiq Inc. extends a Lifetime Limited Warranty to the original purchaser that the TecNiq Inc. Lamp is free from defects in workmanship and/or materials only. See the TecNiq warranty document for details.

These two (2) lights fulfill the requirements for Lower Zone C lower level warning devices.

Lens Color - Both Red

Both warning light lenses shall be red in color.

Lightbar, Frt, Ahrens-Fox Bar - 57" Single Stack - No Brow Lights

## CAB FORWARD ROOF MOUNTED LIGHTBAR

An Ahrens-Fox, single tier beacon shall be mounted facing forward on the cab roof. The beacon housing shall be finished in black powder coating.

The beacon shall contain eight (8) warning light pods facing forward and one (1) pod facing each side of the apparatus. Each pod shall contain ten (10) red LED's with red lens.

This lightbar fulfills the requirements for Upper Zone A and in combination with the upper rear warning devices fulfills the requirements for Upper Zones B, C, and D. Any clear warning light(s) in the lightbar shall be disabled automatically for the “Blocking Right of Way” mode.

Grille, Frt, TecNiq LED

## LOW LEVEL WARNING LIGHTS

Two (2) TecNiq warning lights, K60 Series, red LED lightheads with chrome bezels shall be mounted on the front of the chassis on the front grille.

The lightheads shall be surface mounted and shall fit standard mounting holes secured with four (4) stainless steel screws. Wiring shall extend from the lighthead back. The lightheads shall be fitted with high efficiency optics and a permanently affixed lens to provide a warning light beam across all angles. The lightheads shall be fitted with AutoSync, a feature that will automatically synchronize the flash patterns of the warning lights without additional wiring. Fully sealed, submersible electronics shall be furnished on each lightheads. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The solid state warning light shall be vibration resistant and designed with fully sealed submersible electronics. The K60 is rated IP68 for dust and water resistance.

TecNiq Inc. extends a Lifetime Limited Warranty to the original purchaser that the TecNiq Inc. Lamp is free from defects in workmanship and/or materials only. See the TecNiq warranty document for details.

These lights fulfill the requirements for Lower Zone A lower level warning devices.

Lens Color - Both Red

Both warning light lenses shall be red in color.

Hood Side, TechNiq LED

## FRONT INTERSECTION LIGHTS

Two (2) TechNiq warning lights, K60 Series, LED lightheads with chrome bezels shall be mounted on the front of the chassis on the front grille.

The lightheads shall be surface mounted and shall fit standard mounting holes secured with four (4) stainless steel screws. Wiring shall extend from the lighthead back. The lightheads shall be fitted with high efficiency optics and a permanently affixed lens to provide a warning light beam across all angles. The lightheads shall be fitted with AutoSync, a feature that will automatically synchronize the flash patterns of the warning lights without additional wiring. Fully sealed, submersible electronics shall be furnished on each lightheads. The hard coated lens shall provide extended life/luster protection against UV and chemical stresses. The solid state warning light shall be vibration resistant and designed with fully sealed submersible electronics. The K60 is rated IP68 for dust and water resistance.

TecNiq Inc. extends a Lifetime Limited Warranty to the original purchaser that the TecNiq Inc. Lamp is free from defects in workmanship and/or materials only. See the TecNiq warranty document for details.

These two (2) lights fulfill the requirements for Lower Zone B & D lower level warning devices.

Lens Color - Both Red

Both warning light lenses shall be red in color.

Body, Side over Wheel TecNiq - LED

## FRONT INTERSECTION LIGHTS

Four (4) TecNiq warning lights, K60 Series, red LED lightheads mounted two (2) on each side of the body over the rear wheel.

The lightheads shall be surface mounted and shall fit standard mounting holes secured with four (4) stainless steel screws. Wiring shall extend from the lighthead back. The lightheads shall be fitted with high efficiency optics and a permanently affixed lens to provide a warning light beam across all angles. The lightheads shall be fitted with AutoSync, a feature that will automatically synchronize the flash patterns of the warning lights without additional wiring. Fully sealed, submersible electronics shall be furnished on each lighthead. The hard coated lens shall provide extended life/luster

protection against UV and chemical stresses. The solid state warning light shall be vibration resistant and designed with fully sealed submersible electronics. The K60 is rated IP68 for dust and water resistance.

TecNiq Inc. extends a Lifetime Limited Warranty to the original purchaser that the TecNiq Inc. Lamp is free from defects in workmanship and/or materials only. See the TecNiq warranty document for details.

These lights fulfill the requirements for Lower Zone B & D lower level warning devices.

Lens Color - Both Red

Both warning light lenses shall be red in color.

Upper Rear, AF Upper Warn Lts - Stanchions - 2 Tier LED

## REAR UPPER LEVEL WARNING LIGHTS

Two (2) nine (9) inch wide Ahrens-Fox, double tier beacons shall be mounted facing rear on polished stainless steel stanchions behind the suction trays (if equipped) one (1) on the driver side and one (1) on the officer side. The beacon housings shall be finished in black powder coating.

Each beacon shall contain four (4) warning light pods each with ten (10) red LED's. There shall be two (2) pods facing the rear and two (2) pods facing each side of the apparatus.

These two (2) lights fulfill the requirements for Upper Zones B, C & D upper level warning devices. Whelen - LED - TAL85 Traffic Advisor

## LED TRAFFIC ADVISOR

One (1) amber LED Whelen traffic advisor, model TAL85, with cable, shall be mounted on the upper rear of the apparatus. The device shall consist of eight independent LED heads.

The signal patterns of the device shall be progressive left, progressive right, center out, and emergency “All Flash.” The switch control box is to be mounted in the cab allowing for easy operation by the driver.

Labels, Identification & Safety, Mtd Drvr's Compt/Pump Panel

## IDENTIFICATION AND SAFETY LABELS

A permanent plate shall be installed in the driver's compartment to specify the quantity and type of the following fluids in the vehicle:

1. Engine oil.
2. Engine coolant.
3. Transmission fluid.
4. Pump Transmission Lubrication Fluid.
5. Pump Primer Fluid (If applicable).
6. Drive Axle Lubrication Fluid.
7. Air-conditioning refrigerant.
8. Air-conditioning lubrication oil.
9. Power steering fluid.
10. Transfer case fluid.
11. Equipment rack fluid.
12. Air compressor system lubricant.
13. Generator system lubricant.

A permanent plate with pump performance data and serial numbers shall be installed on the pump panel.

A permanent plate shall be installed in the driver's compartment specifying the maximum number of personnel the vehicle is designed to carry per NFPA standards. It shall be located in an area visible to the driver.

An accident prevention sign stating "DANGER PERSONNEL MUST BE SEATED AND SEAT BELTS MUST BE FASTENED WHILE VEHICLE IS IN MOTION OR DEATH OR SERIOUS INJURY MAY RESULT" shall be placed so it is

visible from all seating positions.

An accident prevention sign stating "DANGER DO NOT RIDE ON REAR STEP WHILE VEHICLE IS IN MOTION, DEATH OR SERIOUS INJURY MAY RESULT" shall be placed so it is visible from the rear step of the vehicle.

If an inlet located at the pump operators position is valved, it shall be provided with a permanent label with language per NFPA-1901, current edition.

Wheel Chocks, (2) Worden HWGY, Yellow Alum w/Sld-Out Brkt

## WHEEL CHOCKS

One (1) pair of heavy duty, high tensile molded aluminum wheel chocks measuring 7.75" high x 8.5 wide x 15" long shall be provided with the apparatus. The wheel chocks shall have a bright yellow powder coat finish for high visibility, safety and corrosion resistance. No exception shall be allowed to these requirements.

Two chock holders shall be provided and mounted on the left side of the apparatus below the front body compartment. Hard Suction, 10' x 4", Lightweight PVC w/4" NH Cplngs

## HARD SUCTION HOSE

Three (3) 10' long x 4" diameter, lightweight PVC flexible suction hose shall be provided. It shall be first quality, non-collapsible type and designed for having a low friction loss which will not collapse under a vacuum of 23". The hard suction hose shall be equipped with a 4" NH long handle female end and 4" NH rocker lug male end couplings.

Striping, 1"x4" Scotchlite, Reflective, Vhcl Prmtr

## REFLECTIVE SAFETY STRIPE

A 1" x 4" wide 3M brand Scotchlite reflective stripe shall be affixed to the perimeter of the vehicle. The striping shall be placed up to 60" above ground level and shall conform to NFPA reflectivity requirements. At least 60% of the perimeter length of each side and width of the rear, and at least 25% of the perimeter width of the front of the vehicle shall have

reflective stripe.

Base Stripe Color, White Reflective

## REFLECTIVE STRIPE COLOR

The apparatus body striping shall be white reflective.

Accent Stripe Color, White Reflective

The smaller accent stripe(s) shall be white reflective.

Water Tank Warranty - Service Life

## WATER TANK WARRANTY

The water tank is to be free from defects in material and workmanship for the normal service life of the apparatus in which the water tank is installed.

If a tank has a defect in material or workmanship covered by the warranty, the tank manufacturer shall repair at their cost, by authorized personnel or authorized third parties. The tank manufacturer shall make an effort to effectuate repair within 48 hours following initial notification of a covered defect. The tank manufacturer shall make a reasonable effort to repair tank at most convenient location to end user.

The tank manufacturer shall reimburse all reasonable costs associated with rendering the tank accessible for repair, including, but not limited to, removal and reassembly of the hose bed floor.

== Limited Warranty - Use For Contracts - 4.001 ==

Limited Warranty

**HME, INC. LIMITED WARRANTY**

Thank you for purchasing our products!

This book specifies the limited warranty offered by HME, Inc. (“**HME**”) for HME products. Please note that the applicable limited warranty depends on what product you, the original purchaser, bought. As such, not all terms contained in this book will be applicable to you. Please review the coverage(s) appropriate for your HME product before proceeding through the rest of this book.

This book is divided as follows: Section A, General Provisions

Section B, Limited Warranties

Section C, Exclusions

Section D, Additional Provisions Applicable to All Products.

HME’s limited warranty set forth in this book will be referred to collectively as this “**Limited Warranty**” or “**HME’s Limited Warranty**”. In this Limited Warranty, the term “**you**” and “**Customer**” will refer to the original purchaser/owner of the HME products and not to any subsequent purchaser or owner.

1. **GENERAL PROVISIONS**

*This Section A constitutes part of the Limited Warranty for all HME products.*

**Who and What HME’s Limited Warranty Covers**

HME’s Limited Warranty only covers you, the original purchaser/owner of new HME product(s). Subsequent owners or purchasers are not covered by this Limited Warranty.

Subject to the limitations and exclusions set forth in this Section A as well as Sections B, C, and D below, HME’s Limited Warranty generally covers repair, refinish, or replacement, at the sole option of HME, of your new HME cab, chassis, apparatus, aerial or any components thereof (hereinafter “**Covered Part(s)**”) in which a defect in materials or workmanship appears during normal use, maintenance or service within the Warranty Period (as “**Warranty Period**” is defined in each part of this Limited Warranty).

If HME determines there is warranty coverage for a Covered Part, HME shall, at its sole option, repair, refinish, or replace (or have repaired or refinished), at HME’s factory, by HME’s representative at the location of the Covered Part, or at HME’s authorized service facility (whichever location HME designates), any Covered Part not otherwise excluded from HME’s Limited Warranty if the Covered Part proves, in HME’s opinion, to be defective and if all other terms of this Limited Warranty are complied with. The repair, refinish, or replacement of a Covered Part does not extend the life of this Limited Warranty. This Limited Warranty is valid only in the United States and Canada.

**What This Limited Warranty DOES NOT Cover**

This Limited Warranty is limited by the limitations and exclusions in this Section A and is also limited by the limitations and exclusions set forth in Sections B, C, and D below. The limitations and exclusions set forth in the most specific Section of this Limited Warranty shall supersede the warranty provisions in all other Sections. For example, if there is a potential paint defect, then subject to the other limitations and exclusions in this Limited Warranty, the paint limited warranty would apply in Section B(3) below rather than the general warranty in Section B(1) below.

No Replacement or Repurchase of Fire Apparatus. IF HME DETERMINES THERE IS WARRANTY COVERAGE, REPAIR, REFINISH, OR REPLACEMENT OF COVERED PARTS BY HME IS THE EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY. **HME WILL NOT UNDER ANY CIRCUMSTANCES REPLACE A FIRE APPARATUS OR REPURCHASE THE FIRE APPARATUS FROM YOU.**

1. **LIMITED WARRANTY**
	1. **General Warranty**

The Limited Warranty under this Section B(1) (the “**General Warranty**”) for Covered Parts is limited to chassis systems and components such as the driveline, cooling system, hydraulic system, suspension, air system, and climate control system, (but excludes the engine, transmission and axles); apparatus systems and components; and the aerial device and system.

**Warranty Period for General Warranty**

The General Warranty is in effect for a Warranty Period that continues until 36 months from the date of delivery of the new fire apparatus to the original owner, or the first 36,000 actual miles (or 57,900 actual kilometers) from the delivery date, whichever occurs first. At the time of purchase, you as the original purchaser have an option at an additional cost to extend the Warranty Period for the General Warranty for additional years up to a maximum period of 5 years from the delivery date, 100,000 miles from the delivery date, or 3,000 engine hours from

the delivery date, whichever occurs first. The General Warranty is not valid if the odometer is disconnected, or its reading has been altered, or mileage cannot be determined.

* 1. **Structural Warranty**

The Limited Warranty under this Section B(2) (the **“Structural Warranty”)** for Covered Parts is limited to the cab structure, body structure, and structural failures of aerials.

**Warranty Period for Cab Structural Warranty**

The Structural Warranty is in effect for a Warranty Period that continues until 10 years from the date of delivery of the completed new fire apparatus to the original purchaser, or the first 100,000 actual miles (or 161,290 actual kilometers) from the delivery date, whichever occurs first. The Structural Warranty is not valid if the odometer is disconnected, or its reading has been altered, or mileage cannot be determined.

* 1. **Paint Warranty**

The Limited Warranty under this Section B(3) (the “**Paint Warranty**”) specifically covers Paint Defects on a cab exterior finish, apparatus body panel exterior finish, or the aerial ladder assembly manufactured by HME. A Covered Part shall be considered to have “**Paint Defects**” if it is found by HME to have any loss of gloss, color retention, cracking, blistering, bubbling or flaking under normal use and with normal maintenance and cleaning. For Paint Defects, you as the original purchaser must notify HME in writing within 30 days after any claimed Paint Defect has appeared. In the case of a warranty claim, the refinish or repair of all non-warranty blemishes, if any, shall be negotiated prior to the warranty refinish or repair.

**Warranty Period for Paint Warranty**

The Paint Warranty is in effect for a Warranty Period that continues until the period specified below or the date of the first 36,000 actual miles (or 57,900 actual kilometers) from the delivery date. The Paint Warranty is not valid if the odometer is disconnected, or its reading has been altered, or mileage cannot be determined. At the time of purchase, you as the original purchaser have an option for an extra cost to extend the Warranty Period for the Paint Warranty for additional years up to a maximum of 5, 7, or 10 years. The Paint Warranty only covers the cost to refinish or repair Paint Defects for the specific defect and at the percentages set forth below:

|  |  |
| --- | --- |
| Top Coat and Appearance Gloss, Color Retention, Cracking | Coating System, Adhesion, Flaking, Blistering, Bubbling |
| 0 to 72 months 100%73 to 120 months 50% | 0 to 36 months 100%37 to 84 months 50%85 to 120 months 25% |

Note: To clarify, the chart above does not extend the Warranty Period for the Paint Warranty beyond the first 36,000 actual miles (or 57,900 actual kilometers) from the delivery date. If you purchase the 5 year extended Warranty Period, then the chart above should be limited to 5 years from the delivery date and there will be no warranty after that date.

* 1. **Chassis Frame Rail Warranty**

The Limited Warranty under this Section B(4) (the **“Frame Warranty”)** is limited to the chassis frame rail. It does not cover support brackets and hardware, such as those used for fuel tank mounting and cab mounting.

**Warranty Period for Chassis Frame Rail Warranty**

The Frame Warranty is in effect for a Warranty Period that continues until the date that is the expected lifetime of a new vehicle. For purposes of this Frame Warranty, the expected lifetime is 20 years from the original delivery date. This Frame Warranty is not valid if the odometer is disconnected, or its reading has been altered, or mileage cannot be determined.

* 1. **Frame Rail & Crossmember Corrosion Protection Warranty**

The Limited Warranty under Section B(5) of this Limited Warranty (the “**Corrosion Protection Warranty**”) specially covers galvanized steel corrosion on the chassis frame and crossmembers. The Corrosion Protection Warranty covers parts and labor to correct the affected area as set forth below. Annual inspections at an authorized HME service provider must be performed to keep the warranty in effect.

Upon any claim made under the Corrosion Protection Warranty, the affected area must be inspected, reviewed and approved by HME or its designated repair personnel or facility prior to any work being completed. Any authorized warranty work shall be performed only by HME or its designated repair personnel or facility. Any repairs completed by an unauthorized repair shop or personnel shall cause this Corrosion Protection Warranty to be invalid. The obligations of HME under this Corrosion Protection Warranty are limited to the cost of bringing the affected area into compliance with HME’s specifications or of removing any defects in materials or workmanship.

**Warranty Period for Corrosion Protection Warranty**

This Corrosion Protection Warranty is in effect for the original owner for a Warranty Period that continues until 20 years from the date of delivery of the new fire apparatus to the original owner.

* 1. **Stainless Piping Warranty**

The Limited Warranty under Section B(6) of this Limited Warranty (the “**Stainless Piping Warranty**”) includes Covered Parts that are limited to the stainless steel piping used in the construction of the fire apparatus water/foam plumbing systems.

**Warranty Period for Stainless Piping Warranty**

The Stainless Piping Warranty is in effect for a Warranty Period that continues until 10 years from the original delivery date, or the first 36,000 actual miles (or 57,900 actual kilometers) from the delivery date, whichever occurs first.

* 1. **Waterway Warranty**

The warranty for the waterway component is a pass-through warranty from the original manufacturer. HME does not provide a warranty for the waterway.

1. **EXCLUSIONS**

The following exclusions apply to this Limited Warranty. Additional exclusions may be listed in other Sections of this Limited Warranty.

* 1. **General Exclusions**

As to all HME products, items not covered by this Limited Warranty include:

* Normal maintenance activities/items and wear parts such as lubrication, batteries, tires, filter and oil replacement, belts and hoses, brake lining and adjustment, door check strap adjustment, vehicle alignments, electrical accessories, voltage regulator, flashers, windshield wipers, etc.
* Damage caused by, but not limited to, failure to follow the required or recommended maintenance schedule, failure to maintain proper fluid and lubricant levels, failure to ensure operating parameters are maintained and failure to follow operating instructions.
* Damage caused by, but not limited to, misuse, abuse or neglect (e.g. overloading, driving over curbs, or exposure to corrosive, including but not limited to salt and/or acidic exposure, or flooded environments).
* Damage that arises outside of normal use.
* Damage caused by collision, fire, theft, vandalism, civil unrest, acts of terrorism, acts of war, acts of God, or similar casualties.
* Damage or defects with respect to Covered Parts in a vehicle that is leased or rented to a second party for compensation.
* Incidental expenses such as, but not limited to loss of use, inconvenience, loss of time, vehicle rental, towing, lodging or travel costs, etc.
* Additions or accessions not originally installed by HME, including ancillary equipment used in firefighting, and any problems resulting from such additions or accessions.
* Installation of any “aftermarket” devices or the modification of any existing system or component originally installed by HME without HME’s prior express written approval and any problems resulting from such installation or modification.
* Covered Parts that have been sold by an owner other than HME before the Covered Parts become a complete vehicle.
* Any alteration of a Covered Part not authorized in writing by HME prior to alteration.
* Other specific exclusions listed in each part in this book.
	1. **Exclusions for General Warranty**

Items not covered by the General Warranty include:

* The frame, cab structure, body structure, aerial structure, stainless piping, and paint, but each is covered by specific warranty terms as defined in their individual warranties.
* The engine, transmission, axles or components added to the chassis by another party; however, the engine, transmission, axles and/or components added to the chassis by another party may be covered by warranties issued to you from the respective component manufacturers.
* The components added to the apparatus by another party; however, these items may be covered by warranties issued to you from the respective component manufacturers.
	1. **Exclusions for Structural Warranty**

Items not covered by the Structural Warranty include:

* All hardware, seats, mechanical items, electrical items and paint finishes.
* Covered Parts damaged as a result of corrosion, including, but not limited to salt and/or acidic exposure.
	1. **Exclusions for Paint Warranty**

Items not covered by the Paint Warranty include:

* Damage caused by lightning, earthquake, windstorm, hail, flood or use in a corrosive or acidic environment.
* Damage from lack of poor maintenance and cleaning.
* Gold leaf or striping except that which is affected by repair. (Gold leaf or striping affected by repair must have been installed during the manufacture of a cab to be covered under the Paint Warranty for the cab.)
* Time, loss of use of the vehicle, inconvenience, vehicle rental, lodging, food or other consequential or incidental loss that may result from a Paint Defect.
* UV paint fade.
* Cab underside
* Chassis frame rails, crossmembers and suspension
* Aerial Ladder torque box and outrigger assemblies.
* Components not painted by HME may be covered by the respective manufacturer’s warranty.
	1. **Exclusions for Frame Warranty**

Items not covered by the Frame Warranty include:

* Damage caused as a result of corrosion, including but not limited to salt, chlorides and/or acidic exposure.
	1. **Exclusions for Corrosion Protection Warranty**

Items not covered by the Corrosion Protection Warranty include:

* Parts that have not been galvanized, including but not limited to, suspension hangers, fuel tank and mounting, and air system components.
* Transportation costs.
* Damage due to lack of specified normal maintenance and service as outlined and required in the service and operating manuals provided with the apparatus.
* Damage from accidents, abuse, physical and mechanical damage, and all other conditions not considered as “normal” operating conditions.
1. **ADDITIONAL PROVISIONS APPLICABLE TO ALL HME PRODUCTS**

*This Section D applies to all HME products.*

**Exclusive Warranty**

THE LIMITED WARRANTY SET FORTH IN THIS BOOK IS THE ONLY WARRANTY APPLICABLE TO HME PRODUCTS AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTY BY HME, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY IS FURTHER LIMITED BY THE TERMS AND CONDITIONS STATED IN THE PROVISIONS BELOW:

LIMITATION ON DAMAGES: HME shall not be liable for incidental, consequential, direct, indirect or other damages (such as, but not limited to, lost wages, attorney’s fees, or lost vehicle rental expenses) that result from any breach or claim related to or arising out of (a) this Limited Warranty, (b) other warranties, if any, (c) any agreement between HME and the Customer, or (d) the HME products or any actual or alleged defect related to the HME products.

LIMITATION ON IMPLIED WARRANTIES: Any implied warranties that arise by way of applicable state or provincial law, including any implied warranty of merchantability or fitness for a particular purpose, are limited in duration to the applicable Warranty Period and are limited in scope of coverage to the Covered Parts covered by this Limited Warranty.

**Third Party Representations**

HME does not authorize any person to create for HME any other obligations or liability in connection with its products, and HME is not responsible for any representation, promise or warranty made by an HME Sales Representative, component or vehicle manufacturer, or other person beyond what is expressly stated in this Limited Warranty.

**How to Obtain the Limited Warranty**

In order to be eligible under this Limited Warranty, you **MUST** return a completed “Limited Warranty Registration” form to HME within 60 days of the date of delivery. The original purchaser/owner is responsible for submitting, either directly or with the assistance of the HME Sales Representative, a “Limited Warranty Registration” form to HME within 60 days of the date of delivery.

The “Limited Warranty Registration” form is located in both the HME Chassis Owner’s Manual supplied with your new vehicle, and at the end of this Limited Warranty document. THIS LIMITED WARRANTY IS NOT VALID IF THE LIMITED WARRANTY REGISTRATION FORM IS NOT SENT TO HME WITHIN 60 DAYS AFTER THE DATE OF DELIVERY TO THE ORIGINAL PURCHASER/OWNER.

**How to Get Service**

To obtain warranty service, the original owner shall call HME Monday through Friday from 7:30 a.m. to 5:00

* 1. (Eastern Time) at 1-616-534-1463. Our customer service technicians can help answer questions regarding our products and services, provide information about warranty coverage and maintenance issues, help you arrange for service under third party warranties, and locate HME authorized service centers in your area. ALL LIMITED WARRANTY WORK MUST BE AUTHORIZED BY HME BEFORE REPAIRS ARE MADE. When you call for service, please have the following information available so that we may expedite your service:
		+ Your HME Job Number (Found on VIN Tag)
		+ Original owner date of purchase
		+ The current actual mileage
		+ The current actual engine hours

If service is needed on a Covered Part, you shall be responsible for all cost associated with transporting the Covered Part to the service location HME identifies at the time HME arranges for service. NO WARRANTY CLAIM WILL BE PROCESSED OR PAID WITHOUT PROOF OF ACTUAL MILEAGE AND THE DATE OF DELIVERY TO THE ORIGINAL PURCHASER/OWNER.

**Legal Remedies**

Any claim or controversy arising out of or relating to this Limited Warranty, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association in the State of Michigan in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The determination of the arbitrator(s) shall be in writing and shall include an explanation of the basis for the determination. The determination of the arbitrator(s) shall be final and binding and judgment upon such determination may be entered in any court having jurisdiction.

General Warranty Period - 3 Years Total

## COVERAGES

General Warranty - Three (3) Years Total

Cab & Body Paint Warranty Period - 5 Years Cab & Body Paint Warranty - 5 Years