Toyne, Inc

00-10-1050

CERTIFICATION OF NFPA 1901 COMPLIANCE

As per NFPA 1901, the Purchaser shall assume the responsibility of determining, prior to the purchase of the apparatus, who will be responsible for ensuring that all aspects of NFPA 1901-2009 are met. The manufacturer shall be responsible for providing or performing only the items requested by the purchaser in the documents provided to the manufacturer by the purchaser.

Written certification shall be provided by the manufacturer stating that the delivered apparatus complies with the NFPA 1901-2009 Standard. If the purchaser has elected to provide, perform, outsource and/or contract with a third party, any item required by NFPA 1901-2009 (per the previous paragraph), the manufacturer shall provide, upon delivery, a "Statement of Exceptions" per Chapter 4 of NFPA 1901-2009.

This "Statement of Exceptions" shall include:

1. A seperate specification of the section of the NFPA Standard for which the apparatus is lacking.compliance.

2. A description of the particular aspect of the apparatus that is not compliant.

3. A description of the further changes or modifications to the delivered apparatus which must be completed to achieve full compliance.

4. An identification of the entity who will be responsible for making the necessary post-delivery changes or modifications to the apparatus to achieved full compliance with the applicable standard.

Prior to, or at the time of, delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for the final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating a mutual understanding and agreement between the parties regarding the substance thereof.

The purchaser shall not place the apparatus into active emergency service until fully compliant with NFPA 1901-2009.

00-10-1090

NFPA REQUIRED EQUIPMENT

The end user of this apparatus shall be providing all other equipment and accessories that is required by NFPA 1901 but not specifically listed in these specifications.

00-10-1100

MAXIMUM TOP SPEED

The maximum top speed of this apparatus shall be determined using the following NFPA 1901 Chapter 4 criteria:

Toyne, Inc

- Apparatus with 1250 gallon combined water tank capacity shall not exceed 60 MPH.
- Apparatus with GVWR of over 50,0000 lbs. shall not exceed 60 MPH.
- Apparatus weighing over 26,0000 lbs. shall not exceed 68 MPH.

02-1A-0550

WATEROUS MODEL CS 1,250 GPM SINGLE STAGE PUMP

The fire pump shall be a Waterous Fire Pump Company model CS that complies with all applicable requirements of the latest edition of the " Standard for Automotive Fire apparatus " published by the National Fire Protection Association and printed in Pamphlet 1901.

02-20-0300

WATEROUS MODEL CS 1,250 GPM SINGLE STAGE PUMP

The fire pump shall be a Waterous Fire Pump Company model CS that complies with all applicable requirements of the latest edition of the " Standard for Automotive Fire apparatus " published by the National Fire Protection Association and printed in Pamphlet 1901.

02-30-0100

WATEROUS PUMP WARRANTY

The Waterous pump and related Waterous components shall be be covered by a 5 year condi-tional warranty covering defects in materials and/or workmanship. Any component that is provided by Waterous with the pump system but not manufactured by Waterous will be covered by warranties of the respective manufacturer. Part failure due to normal wear and tear or improp-er use shall not be covered under this warranty.

02-94-5100

UNDERWRITER'S LABORATORY CERTIFICATION

The completed apparatus shall be tested and approved by the independent testing company Underwriters Laboratories, Inc. The manufacturer of the apparatus shall be responsible for all costs involved in this test. The Certification of inspection and approval shall be presented to the Fire Chief of the Department upon delivery of the completed apparatus.

02-95-0700

PUMP PERFORMANCE - 1,250 U.S. GPM.

The pump shall be a single stage centrifugal with a class "A" rated capacity of 1,250 United States gallons per minute. The pump shall deliver the percentage of rated discharge pressures as indicated below:

- 100 percent of rated capacity at 150 pounds net pressure.
- 70 percent of rated capacity at 200 pounds net pressure.
- 50 percent of rated capacity at 250 pounds net pressure.
- 100 percent of rated capacity at 165 pounds net pressure.

Toyne, Inc

02-96-5000

PUMP CONSTRUCTION

The fire pump shall be midship mounted. The pump shall be mounted across the chassis frame rails and shall be mounted at the Fire Pump Manufacturer's recommended angular position with the drive shafts.

The pump shall be free from objectionable pulsation and vibration under all normal operating conditions. The engine shall provide sufficient horsepower and revolutions per minute to allow the pump to meet or exceed its rated performance.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by NFPA 1901.

The pump body shall be close-grained gray iron and must be horizontally split in two sections for easy removal of the entire impeller shaft assembly and designed for complete servicing from the bottom of the truck without disturbing setting of the pump in the chassis or apparatus piping which is connected to the pump. The pump body halves shall be bolted together on a single horizontal face to minimize leakage and facilitate re-assembly.

The impeller shaft shall be stainless steel, accurately ground to size, and supported at each end by oil or grease-lubricated anti-friction ball bearings for rigid and precise support. The bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. The impeller shaft shall be of a two piece construction separable between the pump and pump transmission to allow true separation of the transmission from the pump without disassembly of either component. No sleeve type bearings shall be used.

The pump transmission shall be rigidly attached to the pump body assembly and be of the latest design incorporating a high strength, involute, tooth-form Hy-Vo chain drive and driven sprockets capable of operating at high speeds to provide smooth, quiet transfer of power.

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

02-96-7600

IMPELLER - FLAME PLATE

The impeller shall be bronze with double suction inlets, accurately balances(mechanically and hydraulically), of the mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have a **Flame Plated Hub** to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.

Wear rings to be bronze and shall be easily replaceable to restore pump efficiency and eliminate the need to replace the entire pump casing due to wear.

Toyne, Inc

02-96-8120

MECHANICAL SEAL

The pump shaft shall have face-type, self-adjusting corrosion and wear-resistant mechanical seals.

02-97-4000

SACRIFICIAL PUMP ANODES

To aid in protecting the pump from internal corrosion, three sacrificial anodes shall be provided, located one in the lower section of each side inlet and on the discharge side of the pump.,

04-03-0816

FRC PUMP BOSS PRESSURE GOVERNOR SYSTEM

Fire Research PumpBoss pressure governor and monitoring display kit shall be installed. The kit shall include a control module, pressure sensor, and cables.

The following continuous displays shall be provided:

CHECK ENGINE and STOP ENGINE warning LEDs
Engine RPM; shown with four daylight bright LED digits more than 1/2" high
Engine OIL PRESSURE; shown on an LED bar graph display in 10 psi increments
Engine TEMPERTURE; shown on an LED bar graph display in 10 degree increments
BATTERY VOLTAGE; shown on an LED bar graph display in 0.5 volt increments
PSI / RPM setting; shown on a dot matrix message display
PSI and RPM mode LEDs
THROTTLE READY LED.

A 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.

The program shall store the accumulated operating hours for the pump and engine, previous incident hours, and current incident hours in a non-volatile memory. Stored elapsed hours shall be displayed at the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Engine RPM
Pump Overheat
High Transmission Temperature
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)
High Battery Voltage
Low Engine Oil Pressure
High Engine Coolant Temperature

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 control knob that uses optical technology

shall adjust pressure or RPM settings. It shall be 2" in diameter with no mechanical stops, a serrated grip, and have a red idle push button in the center.

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 and monitoring display shall be programmed to interface with a specific engine.

04-12-0400

PUMP SHIFT MECHANISM -AIR/ELECTRIC

The pump shall be shifted from road-to-pump by means of a cab mounted air over electric pump shift switch. The switch shall have a built in positive locking mechanism to prevent accidental movement of the switch. The locking mechanism shall require operator to manually lift up on the switch lever to disengage the lock.

The switch shall have three positions. Position 1 shall be road position, position 2 shall be a neutral position and position 3 shall be pump position.

A green indicator light shall be provided in the driving compartment and shall be energized when the pump shift has been completed. This light shall be labeled "PUMP ENGAGED". When the apparatus is equipped with an automatic transmission, a green indicator light be provided in the driver compartment and at the pump operators position and shall be energized when both the pump shift has been completed and the chassis transmission is in pump gear. This light shall be labeled " OK TO PUMP". The light on the pump panel shall be positioned adjacent to, and preferably above, the throttle control mechanism and shall be marked "WARNING: DO NOT OPEN THROTTLE UNLESS LIGHT IS ON". The pump panel light shall also be energized when the chassis transmission is in the neutral position and the parking brake is engaged.

04-12-4500

WATEROUS MODEL VPO OILLESS PRIMING SYSTEM

A Waterous model VPO oilless priming system shall be provided. The priming pump shall be an electrically driven, positive displacement vane type conforming to standards outlined in National Fire Protection Association 1901. One priming control shall both open the priming valve and start the priming motor.

The primer shall be capable of taking suction and discharging water with a lift of 10 feet in not more than 30 seconds with the pump dry and using 20 feet of appropriately sized hard suction hose with strainer. The system shall develop a vacuum of 22 inches at an altitude of up to 2,000 feet above sea level. The vacuum test shall be performed with a capped 20 foot length of hard suction hose, developing a vacuum of at least 20 inches with a drop not exceeding 10 inches in 5 minutes.

Toyne, Inc

04-12-5050

PRIMER FUSE

The primer shall be protected with a 250 amp fusable link that is designed to protect the apparatus 12 volt electrical system if the primer motor malfunctions.

04-12-8300

MANIFOLD DRAIN VALVE

The pump shall have a manifold type drain valve assembly consisting of a stainless steel plunger in a bronze body with multiple ports. The control for the valve shall be on the left side below the left side master intake and above the side running board. The valve shall be a rotary type with large, easy to grip, handle. The valve shall be labeled PUMP DRAIN.

04-12-9300

BLEEDER/DRAIN VALVES

A 3/4" quarter turn Class 1 model 3/4BV ball type bleeder/drain valve shall be provided for each discharge and auxiliary intake. A hose shall be connected to the bleeder/drain that will direct water below the apparatus and away from the immediate pump operator's location.

04-91-0600

6" LEFT (DRIVER) SIDE MASTER INTAKE

A 6" master intake shall be provided on the left (driver) side of the apparatus. The intake shall have a 6" male National Standard Thread connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "DRIVER SIDE MASTER INTAKE". The label shall be color coded burgundy.

04-91-1000

LEFT SIDE INTAKE STEAMER TYPE - NO VALVE

The left side master intake shall be steamer type and shall not have any type of valve.

04-95-0300

LEFT SIDE MASTER INTAKE CAP

A 6" female NST long handle chrome cap shall be provided on the left side master intake.

05-02-0600

6" RIGHT (PASSENGER) SIDE MASTER INTAKE

A 6" master intake shall be provided on the right (passenger) side of the apparatus. The intake shall have a 6" male National Standard Thread connection. The intake shall have a removable screen to prevent the entry of large objects into the pump. The screen shall be constructed of a material that will provide cathodic protection to the pump. A label shall be provided above the intake that states "PASSENGER

SIDE MASTER INTAKE". The label shall be color coded burgundy.

05-02-1000

RIGHT SIDE INTAKE STEAMER TYPE - NO VALVE

The right side master intake shall be steamer type and shall not have any type of valve.

05-07-7800

RIGHT SIDE MASTER INTAKE CAP

A 6" female NST long handle chrome cap shall be provided on the right side master intake.

05-60-1100

WATEROUS OPM OVERHEAT PROTECTION MANAGER

A Waterous model OPM overheat protection manager shall be provided and installed on the discharge side of the pump. The valve shall function automatically when the water temperature in the pump exceeds 120 degrees Fahrenheit. The valve shall discharge a 3/8" stream of water into the booster tank thereby preventing pump overheat. The valve shall be self-resetting after the temperature of the water in the pump drops below 120 degrees Fahrenheit. A pump panel mounted light shall be provided to indicate when the relief valve is open (discharging to tank).

05-60-1901

No additional cooling discharge

05-90-0201

2" TANK REFILL/RECIRCULATION DISCHARGE

A 2" tank refill and pump recirculation line shall be provided from the discharge side of the pump into the tank. The control for the discharge shall be on the pump operators panel. The discharge shall be attached to the tank using flexible hose.

The water tank fill gauge shall be directly in line with this discharge control.

05-90-0371

TANK REFILL VALVE - HALE MANUAL CONTROL

A Hale Torrent discharge valve(shall be utilized on tank refill line The valve shall be manually controlled from the pump operator's position.

06-02-0500

STAINLESS STEEL PIPING

All piping for discharges shall be stainless steel using stainless steel fittings. Victaulic couplings shall be used in all front, rear and side discharges, deck pipes, and cross lay hose beds for quick, simple removal of any pipe section or valve for maintenance.

High-pressure flexible helix wire reinforced piping with a minimum burst pressure of 1200-PSI may be used in some areas to minimize friction losses. All flexible piping couplings shall be high tensile strength stainless steel.

All piping shall be properly supported and braced to prevent movement of piping other than what is allowed by the Victaulic couplings to compensate for apparatus flexing.

Any discharge manifolds provided on the apparatus must be fabricated of minimum Schedule 10, 304-marine grade piping, minimum of 4" in diameter. The manifold must be fabricated and warranted by the apparatus manufacturer. Use of any welded light gauge (less than Schedule 10) manifolding or plumbing, shall not be acceptable.

06-02-2000

VENTED LUG CAPS AND PLUGS

All intake and discharge plugs and caps and plugs shall be vented lug type design-ed to relieve trapped pressure and help reduce possible operator injuries.

06-04-0200

2-1/2" RIGHT SIDE AUXILIARY INTAKE

One (1) 2-1/2" auxiliary intake shall be provided on the right side of the apparatus pump compartment. The intake shall be controlled from the pump operator's position.

06-04-2000

A Hale Torrent stainless steel suction valve(s) shall be utilized on the right side 2 1/2" intake(s) and shall be located **within the pump compartment.** The valve shall be manually controlled from the pump operator's position.

06-04-8000

A 2 1/2" chrome plated female National Standard Thread swivel connection with screen shall be provided on the right side 2 1/2" intake(s) with a chrome plated male National Standard Thread intake plug with chrome plated chain.

06-04-8100

A 3/4" bleeder/drain valve shall be provided on the right side auxiliary intake.

06-47-4000

FOAM PRO 1600 CLASS A FOAM SYSTEM

A Foam Pro model 1600 Class A foam system shall be provided and properly installed on the apparatus.

The system shall be an electronic, fully automatic, variable speed direct injection discharge side foam proportioning system. The foam proportioning operation shall be based in direct measurement of water flows and pressures.

The system shall be equipped with a control module, suitable for installation on the pump panel.

Incorporated within the motor driver shall be a microprocessor that receives input from the system flowmeter, while also monitoring foam concentrate pump output, comparing values to ensure that the operators preset proportional amount of foam concentrate is injected into the discharge side of the pump.

The control module shall enable the pump operator to 1) activate the foam proportioning system and 2) select the foam proportioning rates from 0.1% to 1.0%.

The foam system shall be capable of the following flow rates at given foam %:

1,700 gpm @ 0.1%
850 gpm @ 0.2%
340 gpm @ 0.5%
170 gpm @ 1%

A 12 volt electric motor driven, positive displacement plunger pump shall be provided. The pump capacity shall be 1.7 gpm at 200 psi with a maximum operating pressure up to 400 psi. The motor shall be controlled by a microprocessor which is mounted in the base of the pump. It shall receive signals from the control module, and power the 1/3 hp electric motor in a variable speed duty cycle to ensure that the correct proportion of concentrate is injected into the water stream.

A full flow check valve shall be provided in the discharge piping to prevent foam contamination in the fire pump and water tank. A 5 psi opening pressure check valve shall be provided in the concentrate line.

The foam supply shall be provided from the integral foam tank described later in these specifications.

An installation and operation manual shall be provided for the system.

06-48-3500

CLASS A "LOW FOAM IN TANK" SWITCH

There shall be a Foam Pro model 2510-0032 low tank level switch provided and vertically mounted in the wall of the foam tank. This switch shall provide "low foam concentrate" indication to the pump operator.

06-48-3800

FOAM SYSTEM SCHEMATIC PLACARD FOR SINGLE TANK SYSTEM

There shall be a Foam Pro part number 6032-0015 foam system layout placard provided and located in close proximity to the pump operator's position as required by NFPA 1901.

06-48-4000

FOAM SYSTEM RATING PLACARD FOR FOAM PRO 1600 SYSTEM

There shall be a Foam Pro part number 6032-0018 foam system rating placard provided in close proximity to the pump operator's position as required by NFPA 1901.

06-49-2000

Toyne, Inc

FOAM CAPABLE DISCHARGES

The two 1 3/4" crosslays and the right rear 2 1/2" discharge shall be foam capable.

07-02-9100

RIGHT 3" DISCHARGE

One (1) 3" discharge shall be provided on the right side of the apparatus.

07-03-3200

A Hale Torrent stainless steel discharge valve(s) shall be utilized on the right side 3" discharge(s). The valve shall be manually controlled from the pump operator's position. A slowclosing mechanism shall be implemented in the control mechanism.

07-03-8100

The right side 3" discharge(s) shall extend straight out of the apparatus with no type of elbow.

07-04-1000

A 3" chrome plated National Standard Thread discharge cap shall be provided on the right side 3" discharge(s) with a chrome plated chain.

07-10-9100

LEFT 2 1/2" DISCHARGE(S)

One (1) 2 1/2" discharge(s) shall be provided on the left side of the apparatus.

07-11-3200

A Hale Torrent stainless steel discharge valve(s) shall be utilized on the left side 2 1/2" discharge(s). The valve shall be manually controlled from the pump operator's position.

07-11-8000

The left side 2 1/2" discharge(s) shall have chrome discharge elbows that are cast as an integral part of the valve.

07-12-1000

A 2 1/2" chrome plated National Standard Thread discharge cap shall be provided on the left side 2 1/2" discharge(s) with a chrome plated chain.

07-21-0000

RIGHT REAR 2 1/2" DISCHARGE

One (1) 2 1/2" discharge shall be provided on the right rear of the apparatus.

07-21-3200

A Hale Torrent stainless steel discharge valve(s) shall be utilized on the right rear 2 1/2" discharge(s). The valve shall be manually controlled from the pump operator's position.

07-21-8000

The right rear 2 1/2" discharge(s) shall have chrome discharge elbow(s).

07-22-1000

A 2 1/2" chrome plated National Standard Thread discharge cap shall be provided on the right rear 2 1/2" discharge(s) with a chrome plated chain.

07-30-9100

LEFT REAR 2 1/2" DISCHARGE

One (1) 2 1/2" discharge shall be provided on the left rear of the apparatus.

07-31-3200

A Hale Torrent stainless steel discharge valve(s) shall be utilized on the left rear 2 1/2" discharge(s). The valve shall be manually controlled from the pump operator's position.

07-31-8000

The left rear 2 1/2" discharge(s) shall have chrome discharge elbow(s).

07-32-1000

A 2 1/2" chrome plated National Standard Thread discharge cap shall be provided on the left rear 2 1/2" discharge(s) with a chrome plated chain.

07-52-0200

1 3/4" LOW MOUNT CROSSLAY PRECONNECTS

Two 1 3/4" preconnected crosslays shall be provided and located between the chassis cab and the top mounted operators walkway standing position.

The crosslay compartment shall be constructed of 5052 smooth aluminum sheet material with a random brushed finish applied after fabrication. Each crosslay shall be piped using 2" piping or high pressure hose incorporating a 2" valve with the control on the top mount pump operators panel.

HINGED ALUMINUM TREADBRITE COVER

An aluminum treadbrite full length hinged cover shall be provided on the top of the crosslay compartment. Rubber spacer blocks shall be provided on the back of the cab to keep the cover from contacting the cab when the cover is in the raised position.

07-52-9100

 # 1 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 1 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.

07-52-9106

 # 2 - 1 3/4" CROSSLAY CAPACITY - 200 FEET

The # 2 - 1 3/4" crosslay shall have the capacity to hold 200 feet of 1 3/4" fire hose and nozzle.

Toyne, Inc

07-53-3100

Two (2) Hale Torrent stainless steel series discharge valves shall be utilized to control the 1-3/4" cross lay hose beds and shall be manually controlled from the pump operator's position. The valves and piping shall be 2".

07-55-0000

There shall be two (2) 2" swivel elbows with 1 1/2" Male NST hose thread connections provided on the 1-3/4" cross lay hose beds. The swivels shall be mounted in a position to prevent hose "pinching" at the hose thread connection.

07-56-1100

CROSSLAY COMPARTMENT ENDS

The crosslay compartment shall be enclosed on each end using a heavy duty webbing to prevent hose from accidently unloading.

A nozzle strap shall be provided for each crosslay. The strap shall be designed to loop through the nozzle handle and secured to the apparatus to keep nozzle from coming out of the crossaly compartment without manually disconnecting the nozzle strap.

07-59-9100

3" MONITOR DISCHARGE-CENTER

A 3" monitor discharge shall be provided above the pump compartment in the center. The discharge piping shall extend above the pump compartment a sufficient distance to allow use of the deck gun.

07-60-4100

A Hale Torrent stainless steel discharge valve(s) shall be utilized on the monitor discharge(s). The valve shall be manually controlled from the pump operator's position. A slow closing mechanism shall be implemented in the control mechanism.

07-62-0000

CAPPED MONITOR DISCHARGE

The monitor discharge shall be capped with a female National Pipe Thread cap for future installation of monitor assembly.

09-00-5100

TOP MOUNTED SELF CONTAINED MODULAR PUMP COMPARTMENT

A self contained modular pump compartment, designed for the integral mounting of a midship pump with top mounted pump operator's panel, shall be provided.

The modular design of the pump compartment shall allow the compartment to be fully independent of the apparatus body or cab. A minimum .75-inch gap shall be provided between the pump compartment and the apparatus body creating a flexible joint between the pump compartment assembly and the apparatus body. An extruded rubber gasket shall be installed in the gap to help prevent entry of road debris, snow,

ice, etc., into the pump compartment. The modular design of the pump compartment shall allow the entire pump system, including the pump itself, to be removed from the apparatus in a one-piece, modular section, while leaving the body intact and without having to cut any sheet metal or welds.

09-18-0500

HYPER-FLEX PUMP MOUNTING

The independent pump module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex"'* vibration and shock isolators using a four (4) point mounting system. Flexible neoprene pads, especially engineered for the expected weight and torsional flexing of the pump module, shall be incorporated into the system to eliminate chassis framerail flexing from transmitting harmful loads and twisting into the pump module.

09-18-0500

HYPER-FLEX PUMP MOUNTING

The independent pump module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex"'* vibration and shock isolators using a four (4) point mounting system. Flexible neoprene pads, especially engineered for the expected weight and torsional flexing of the pump module, shall be incorporated into the system to eliminate chassis framerail flexing from transmitting harmful loads and twisting into the pump module.

09-18-3100

STAINLESS STEEL PUMP COMPARTMENT CONSTRUCTION

The entire pump compartment shall be constructed using only 304 marine grade stainless steel fabricated sheeting with a #4 annealed and polished finish on all exterior surfaces. The pump compartment shall not require any finish painting. Due to the extreme twisting and flexing that all fire apparatus are sub-jected to, aluminum shall not be used in any portion of the pump compartment structural support. The use of any type of enclosed tubing that requires the use of self tapping or any other type of machine screw shall not be acceptable.

09-20-0600

TOP MOUNT PUMP OPERATOR'S WALKWAY

An 18" wide (front to rear) pump operator's walkway shall be provided between the pump compartment and the chassis cab. The walkway shall be constructed of NFPA compliant, slip resistant aluminum treadbrite. A 1" minimum space shall be provided between the walkway edges and the pump compartment and rear wall of the chassis.

09-50-0400

PUMP HEAT PAN ENCLOSURE

A heat pan shall be provided to enclose the bottom of the pump compartment. The entire enclosure shall be fabricated of 304 marine grade alloy stainless steel to prevent rust and corrosion that is commonly found in pans made of steel or aluminum. The assembly shall completely enclose the underside of the pump to aid in the prevention of freezing in winter weather. The bottom of this enclosure shall be designed to be easily removed without the need to remove any bolts or fasteners. For ease of handling,

the bottom enclosures shall be installed in two (2) sections. One (1) section shall slide out each side for maintenance and pump compartment clean-out.

09-50-0500

PUMP COMPARTMENT HEATER

A minimum 30,000 BTU hot water type heater shall be provided and mounted within the pump compartment. Coolant hoses, both feed and return, shall be routed within the frame rails from the engine compartment to the heater in the pump compartment. Shutoff valves shall be provided in both lines and shall be located in an easily accessible location within the engine compartment. A 12-volt fan shall be provided and shall be mounted to direct heated air toward the back of the gauge panel. A lighted switch shall be provided on cab console to activate/de-activate the heater fan.

10-90-0600

PUMP COMPARTMENT SIDE ACCESS DOORS - TOP MOUNT

A brushed stainless steel hinged access door shall be provided on each side of the pump compart-ment. The doors shall have pneumatic hold open devices and push botton type flush latches. The doors shall be a minimum of 30" wide x 20" high.

10-93-0400

TOP MOUNT BRUSHED STAINLESS STEEL PUMP PANEL

A rear facing top-mounted pump panel shall be provided to allow simple, efficient operation of all pump functions necessary during normal fireground operation while provided 360 degree visibility to the pump operator.

A dual level inclined pump panel shall be provided for convenient, user friendly layout of the panel to simplify the operation of the apparatus. Both levels of the panel shall be sloped to provide an angled view of the panel so that the operator may read all identification labels easily.

All controls for the pump shall be identified using permanently engraved identification labels properly secured to the panel. All discharge and intake identification labels shall be color coded to NFPA 1901 recommendations with labels at the control, intake/discharge location and drain port location.

The front incline panel shall be constructed of brushed stainless steel and shall begin at the lower edge of the front panel just behind the control levers and continue back to the area which the se-cond incline level begins.

The rear incline panel shall be constructed of brushed stainless steel and shall begin just above the pressure gauge mounting area and continue up to the top of the pump compartment. The panel shall have a full width stainless steel hinge at the bottom to allow the panel to hinge forward for access to the back of the panel. A latch shall be provided on each end to secure the panel in the closed position. A full pump panel width brushed stainless steel light shield shall be provided at the top of the gauge panel.

10-96-0800

TOP MOUNT PUMP PANEL LIGHTS - L.E.D.

Toyne, Inc

The top mount pump panel shall be illuminated using a 48" I.L.I. track type L.E.D. light assembly.

The light shall be constructed of an unbreakable type clear poly type flexiable material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield shall be provided across the top of the gauge panel.

10-96-0805

SIDE DISCHARGE/INTAKE PANEL LIGHTS - L.E.D.

The right and left side discharge and intake panels shall be illuminated using a 24" I.L.I. track type L.E.D. light assembly on each side.

The lights shall be constructed of an unbreakable type clear poly type flexiable material housed in an aluminum extrusion mounted behind a brushed stainless steel light shield provided across the top of the gauge panel.

10-96-3100

TOP MOUNT CONTROL HANDLES

All top mount valve control handles shall be Class One 'locking' lever type with "T" handles. The "T" handles shall be chrome plated zinc and shall have a 2" diameter recessed area for the color coded identification label.

10-96-3150

STAINLESS STEEL VALVE CONTROL LINKAGES

All manual valve controls shall have control rod linkages constructed of 1/2" stainless steel rod or pipe and shall implement heavy ball swivel joints and clevises for smooth valve operation.

Plain, painted or coated control rods are not acceptable. (No Exception).

11-01-0121

MASTER PUMP DISCHARGE PRESSURE GAUGE - SPAN/THUEMLING

A SPAN/THUEMLING model 50/50-SW23995 fire apparaus quality pressure gauge shall be provided to indicate the main pump discharge pressure. The gauge shall be glycerin filled (-40F to +150F), read up to 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic. The gauges shall be equipped a KEM-X freezeproof isolator protection.

11-01-0122

MASTER PUMP INTAKE PRESSURE GAUGE - SPAN/THUEMLING 50/50

A SPAN/THUEMLING model 50/50-SM50100 fire apparaus quality pressure gauge shall be provided to indicate the main pump intake pressure.The guage shall be glycerin filled (-40F to +150F), read from 30"-0-300 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic. The gauges shall be equipped a KEM-X freezeproof isolator protection. The gauge shall read from 30" hg vacuum to 400-

PSI and shall be accurate within +/- 1%.

The gauge shall read inches of vacuum per inch and shall read hydrant pressure at a minimum of every 1- psi.

11-01-0130

4 1/2" DIAMETER MASTER/INTAKE/DISCHARGE GAUGES

The master intake/discharge gauges shall have a 4 1/2" diameter dial.

11-01-0140

STAINLESS STEEL MASTER GAUGE BEZELS

The master intake and discharge gauges shall have bright finish stainless steel bezels.

11-01-0145

MASTER INTAKE/DISCHARGE PRESSURE GAUGE DIALS - WHITE FACE

The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings with a bright colored tip.

11-01-0160

MASTER INTAKE/DISCHARGE GAUGE LABELING

The master intake gauge shall be clearly labeled "PUMP INTAKE" and shall be located to the left of the master discharge pressure gauge. (Burgundy label).

The master discharge gauge shall be clearly labeled "PUMP DISCHARGE" and shall be located to the right of the intake pressure gauge. (Black with silver lettering)

Due to the anticipated life expectancy of this unit, plastic labels will not be acceptable. .

11-01-0166

MASTER INTAKE.DISCHARGE GAUGE WARRANTY

The master intake/discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty.

The gauges shall also be warrantied for 4 years for defects in materials and workmanship,including fluid leakage. Warranty will not cover labor costs and/or transportation costs.

11-09-3500

PRESSURE/VACUUM TEST PLUGS

Underwriter's test plug adapters shall be provided for connection of pump test gauges.

11-13-5000

FRC WL2000 "TANKVISION" TANK GAUGE

Toyne, Inc

A FRC model WL2000 tank gauge shall be provided on the pump panel. The gauge shall feature a 180 degree highly visible wide view LED display showing the exact level of the booster tank. The gauge shall provide a flashing warning whe tank volume drops below 25% and down-chasing lights when tank is nearly or completely empty. The gauge shall implement a self-calibrating pressure sensor system to indicate the tank volume. A "probe" type of system shall not be used.

11-78-A201

DISCHARGE PRESSURE GAUGES - SPAN/THUEMLING

Unless otherwise specified, each 1 1/2" or larger discharge shall have a SPAN/THUEMLING model FA fire apparaus quality pressure gauge. The guage shall be glycerin filled (-40F to +150F), read from 0 - 400 psi, be accurate within +/- 1% and have a high impact resistant clear acrylic. The gauges shall be equipped a KEM-X freezeproof isolator protection.

11-78-A400

2 1/2" DIAMETER DISCHARGE PRESSURE GAUGES

The individual discharge pressure gauges shall have a 2 1/2" diameter dial.

11-78-A408

STAINLESS STEEL DISCHARGE PRESSURE GAUGE BEZELS

The discharge pressure gauges shall have bright finish stainless steel bezels.

11-78-A415

DISCHARGE PRESSURE GAUGE DIALS - WHITE FACE

The discharge pressure gauge dials shall be white with black markings. The needle shall match the color of the markings with a bright colored tip.

11-78-A450

DISCHARGE PRESSURE GAUGES/CONTROL HANDLE ALIGNMENT

The pressure gauge shall be directly in line with the discharge control handle for the discharge that they provide pressure readout for.

For ease of operation, this requirement must be strictly adhered to. There shall be no exception to this requirement.

11-78-A455

DISCHARGE PRESSURE GAUGE LABELING

The gauges shall be clearly labeled with permanent metal color coded labels.

Due to the anticipated life expectancy of this unit, plastic labels will not be acceptable. .

11-78-A470

PRESSURE GAUGE WARRANTY

The discharge pressure gauges shall have a lifetime non-yellowing and freeze warranty.

The gauge shall also be warrantied for 4 years for defects in materials and workmanship,including fluid leakage. Warranty will not cover labor costs and/or transportation costs.

11-80-2500

IDENTIFICATION LABELS FOR PUMP PANEL

Innovative Controls verbiage label bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These labels shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage label bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards

14-05-5400

1,250 GALLON BOOSTER TANK

The tank shall have the capacity of 1,250 U.S. gallons and shall have a LIFETIME warranty provided by the manufacturer of the tank.

The tank shall be constructed of 1/2" thick polypropylene sheet stock. This material shall be non-corrosive stress relieved thermoplastic U.V. stabilized for maximum protection. The booster tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams shall be nitrogen welded and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removal.

The transverse swash partitions shall be manufactured of 3/8" polypropylene material. The longi-tudinal swash partitions shall be constructed of 3/8" polypropylene and extend through the cover to allow for positive welding and maximum integrity. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be de-signed to provide maximum water flow. All swash partitions shall interlock with one another and are welded to each other as well as to the walls of the tank.

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a minimum dimension of **10" x 10"** outer dimension. The tower shall be located in the left front corner of the hosebed. The tower shall have a 1/4" thick remov-able polypropylene screen and polypropylene hinged type cover. The vent overflow shall be a mi-nimum of schedule 40 polypropylene pipe with a minimum I.D. of 4" that is designed to run through the tank and shall be piped behind the rear wheels to maximize traction.

The tank cover shall be constructed of 1/2" thick polypropylene stress relieved, UV stabilized ma-terial and shall incorporate a three piece locking design which will allow for individual removal of each section

of necessary. The tank cover shall be recessed 3/8" from the top of the tank and shall be welded to both sides and longitudinal partitions of maximum integrity. Each of the covers shall have hold downs consisting of 2" polypropylene dowels spaced a maxi-mum of 30" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowels shall be drilled and tapped to accommodate the lifting eyes.

The sump shall be constructed of 1/2" polypropylene. The sump shall have a 3" NPT threaded outlet on the bottom for a drain plug. An anti-swirl plate shall be located approximately 2 1/2" abo-ve the sump.

The tank cradle assembly shall be designed to provide support to the tank. The assembly shall be approved by the manufacturer of the tank.

14-08-4000

1" TANK SUMP DRAIN

A 1" drain shall be provided in the bottom of the tank sump to fully drain the tank. The drain shall use 1" stainless steel piping with a 1" valve. The control for the valve shall be remoted to the drivers side of the apparatus just under and behind the side rubrail. The drain control handle shall be labeled "TANK DRAIN".

14-10-1100

25 GALLON CLASS A FOAM TANK

A 25 gallon Class A foam tank shall be provided and shall be an integral part of the main booster tank. The tank shall have all connections necessary to connect to the foam system and shall also have a 1/4 turn drain valve with hose attached to allow the tank to be drained.

The tank shall have a **8" x 8"** fill tower with hinged type lid with latch. A vent shall be provided in the lid.

A label shall be provided on the lid that reads "CLASS A FOAM TANK FILL" and "WARNING: DO NOT MIX BRANDS OR TYPES OF FOAM".

14-14-0400

NEWTON 10" STAINLESS STEEL DUMP VALVE WITH TELESCOPING CHUTE

A Newton model 105010" stainless steel dump valve shall be provided on the rear of the apparatus inside the rear compartment.

A Newton model 4036-34 36" stainless steel telescoping extension chute shall be provided.

16-17-0400

2 1/2" REAR TANK FILL

One 2 1/2" rear tank fills shall be provided on the rear of the apparatus. The fill connection shall be located on the right side of the rear face. The valve shall be located on the inside of the rear compartment with the valve control and connection located on the exterior. The fill valve shall be connected to the tank with 2-1/2" stainless steel threaded pipe, with the hose connection on the exterior

of the apparatus supplied with a 2 1/2" FNST swivel connection, 30-degree elbow with a chrome plated plug and chain.

16-17-2900

A Hale Torrent stainless steel valve(s) shall be utilized on the tank fill(s).

16-20-0100

3" TANK TO PUMP

A 3" tank to pump line shall be provided between the tank and the pump. The tank valve shall be a Hale Torrent stainless steel with control mounted on the pump operator's panel.

The piping and valve arrangement shall be capable of flowing a minimum of 500 U.S. gallons per minute to the pump. This flow must be maintained for 80% of the certified tank capacity with the apparatus positioned on level ground.

An integral built in check assembly shall be provided on the pump. The check shall be designed to be an internal part of the pump thus allowing full opening and maximum flow to the pump. The check valve shall operate and shall prevent unintentional back filling of the tank through the tank to pump line. Connection from the valve to the tank shall be made by using a non- collapsible flexible rubber hose.

28-00-0225

TANK CRADLE SUB-STRUCTURE - HOT DIPPED GLAVANIZED

The tank cradle substructure shall be constructed of high strength structural steel. The tank cradle substructure shall be designed to provide support to the booster tank. The design of the cradle shall be approved by the tank manufacturer. Approval of the design shall be provided on request by the purchaser.

The entire tank cradle sub-structure shall be framed and jig welded together to insure a truly square assembly. The substructure shall be fastened to the chassis rails so that it may be easily removed from the chassis for repair, replacement, or mounting to a new chassis.

After complete assembly of the tank cradle sub-structure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable.

28-00-0230

REAR SUPPORT STRUCTURE - HOT DIPPED GALVANIZED

The apparatus body substructure shall be constructed of high strength structural steel.

The substructure shall be designed to provide integral support of the apparatus body, rear step, and the tank mounting cradle system. The entire sub-frame shall be framed and jig welded together to insure a

truly square sub-frame assembly. The substructure shall be fastened to the chassis rails so that the apparatus body may be easily removed from the chassis for repair, replacement, or mounting to a new chassis.

No holes shall be drilled into the top or bottom flange of the chassis frame rails. The substructure shall be designed to allow for a 22"-24" side running board/rear step height when the apparatus is on level ground. All fasteners used to secure the substructure to the chassis frame rails shall be hardened steel with locking type nuts.

After complete assembly of the tank cradle sub-structure, the entire assembly shall be hot dipped galvanized for superior corrosion protection.

Due to the extreme duty that this apparatus will experience during its intended service life and to prevent rusting and corrosion from shortening the service life of this apparatus, sub frames fabricated of painted/undercoated steel or aluminum tubing shall not be acceptable.

28-00-0500

20 YEAR TANK CRADLE STRUCTURAL WARRANTY

The tank cradle shall have a 20 year structural warranty. NO EXCEPTIONS.

28-00-0505

20 YEAR TANK CRADLE CORROSION WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. NO EXCEPTIONS

28-00-0510

20 YEAR REAR STRUCTURAL SUPPORT WARRANTY

The tank cradle shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. NO EXCEPTIONS

The rear structural support shall have a 20 year structural warranty. NO EXCEPTIONS.

28-00-0515

20 YEAR REAR STRUCTURAL SUPPORT CORROSION WARRANTY

The rear structural support shall have a warranty covering structural failure due to corrosion perforation. This warranty shall be in effect for 20 years after delivery of the apparatus to the customer. NO EXCEPTIONS

28-00-1000

***HYPER-FLEX* BODY MOUNTING**

The body module assembly shall be mounted to the chassis frame rails with "*Hyper-Flex*" vibration and shock isolators using a forward mounting system. Flexible neoprene pads, or U-springs especially deve-

loped for the expected weight and torsional flexing of the apparatus body, shall be incorporated into the system to eliminate chassis framerail flexing from transmitting harmful loads and twisting into the body.

28-02-4900

100" BODY WIDTH

The apparatus body shall be 100" wide from side to side measuring from the rub rail mounting surface.

28-04-0400

APPARATUS BODY MATERIAL

The entire apparatus body shall be constructed of 304 marine grade stainless steel with a #4 annealed and polished finish all interior compartment surfaces of the apparatus body. The interior of the apparatus body shall not require any finish painting. The compartment interiors must be a #4 finish. Mill finish or DA sanded finish will not be acceptable.

28-04-1000

APPARATUS BODY CONSTRUCTION

The entire apparatus body shall be formed by sheering and bending the sheet metal. Metal tubular structures or extrusions shall not be used in the construction of the apparatus body. No exceptions to this requirement as all apparatus manufacturers have the capability to manufacture apparatus bodies in this manner. All edges of the sheared metal shall be sanded to remove any sharp shearing edges prior to bending the metal. After sheering and bending, the body shall be assembed on a jig table that is designed to hold all parts securely in place to insure an accurately built apparatus body.

28-04-1200

APPARATUS BODY ASSEMBLY METHOD

The entire apparatus body shall be assembled using only bolted type construction. All apparatus body parts shall be able to be unbolted without the need to cut welds, etc. No exceptions to this requirement as all apparatus manufacturers have the capability to manufacture apparatus bodies in this manner.

28-04-1500

COMPARTMENT FLOORS

All compartment floors shall be constructed of 304 marine grade stainless steel with a # 4 anneal-ed and poliished finish on the upper surface. A drainport shall be provided in each rear corner of the compartment to allow any water that may collect on the floor to drain out. These drainports must be designed to prevent road spray from entering the compartment. The front edge shall consist of a minimum of two bends to provide additional strength in the compartment floor and shall then form the lower door jamb.

All compartment floors shall be sweep out design. This shall include the lower side compartments, any compartments above the wheelwell, any transverse compartments, and the rear face compartment(s). Any exception to this requirement will cause immediate rejection of bid.

Toyne, Inc

28-04-1510

COMPARTMENT WEIGHT RATING

Each compartment shall be designed to carry 1,000 lbs. of equipment distributed throughout the compartment.

28-04-2000

INTERIOR COMPARTMENT SURFACES

All visible interior compartment surfaces shall be 304 marine grade stainless steel with a # 4 annealed and polished finish. Surfaces that are painted or coated in any manner, raw material, or any surface with any type sanded finish are not acceptable.

28-04-2500

FRONT COMPARTMENT CORNERS

The apparatus body front compartment corners and vertical faces on both sides shall be con-structed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be one piece construction from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.

The # 4 finish corner shall wrap around the side of the apparatus body and form the front com-partment door jamb providing front corner protection.

28-04-3600

REAR COMPARTMENT CORNERS - BRUSHED

The apparatus body rear compartment corners and vertical faces on both sides shall be con-structed of 304 marine grade stainless steel with a # 4 annealed and polished finish. The corners shall be one piece construction from top to bottom and from the inner body panel to the outer face of the compartment to provide maximum strength. Corners using structural support channels or extrusions that require two or more pieces shall not be implemented.

The # 4 finish corner shall wrap around the side of the apparatus body and form the rear com-partment door jamb providing front corner protection.

28-04-4500

COMPARTMENT TOPS/CEILINGS

The apparatus body compartment tops shall be constructed of 304 marine grade stainless steel with a # 4 annealed and polished finish on the interior surface.

The stainless shall be overlaid with .125" NFPA aluminum treadbrite. The aluminum treadbrite shall be an overlay only. The treadbrite shall not form any structural part of the apparatus body or shall be bottom side of the treadbrite be visible when looking into the compartment.

Toyne, Inc

28-04-4700

COMPARTMENT TOP OVERLAY

The compartmnet top shall be overlaid with .125" NFPA aluminum treadbrite. The aluminum treadbrite shall be an overlay only and shall not form any structural part of the apparatus body or shall be bottom side of the treadbrite be visible when looking into the compartment.

28-04-5500

PAINTED FENDERWELLS

The left and right side rear fenderwells shall be constructed of ultra-smooth 304 marine grade stainless sheet steel with a minimum tensile strength of 90,000 psi. The fenderwells shall be radius cut and shall have a full circular inner liner to prevent rust pockets and for ease of cleaning. A 1" gap shall be provided on the bottom of each side of the circular liner to allow drainage of water and for easy cleanout. Sufficient clearance shall be provided for tire chains. Before the booster tank is installed, the fenderwells shall be throughly cleaned and all seams sealed to pre-vent corrosion in the fenderwell area.

The outer surface of the fenderwell shall be finished painted. This surface shall not be overlayed with aluminum treadbrite or overlayed with a painted panel that is bolted on after the painting of the apparatus body.

The fenderwells shall be trimmed with a polished stainless steel fenderette, aluminum fenderettes shall not be used as they quickly loose their polished finish. The stainless steel fenderette shall be secured into place with stainless steel fasteners and shall be easily removable for replacement. A black rubber fender welting shall be provided between the fenderette and the inner liner surface.

The fenderettes shall protrude from the apparatus body a maximum of 1" and shall be bolted into place and removable for replacement.

28-04-5660

UPPER DOOR POSTS - PAINTED

The upper door post to the front and rear of the compartment door above the rear wheels shall be constructed of ultra-smooth 304 marine grade stainless sheet steel with a minimum tensile strength of 90,000 psi.

The outer surface of these door posts shall be finished painted.

28-04-6600

OUTER BODY SIDES

The outer left and right side body panels above the compartment tops shall be constructed of 304 2B marine grade stainless steel with a # 4 annealed and polished finish and shall not require any finish paint.

28-12-2100

COMPARTMENT VENTILATION

Each compartment shall have a removable ventilation plate to allow for air movement inthe compartment. A cleanable filter material shall be provided behind the plate.

28-20-0205

COMPARTMENT DOORS - STAINLESS STEEL

For compartments requiring flush hinged doors:

All side compartment doors shall be double-paneled, and designed to fit flush with the side of the apparatus body. Lap style or beveled style doors shall not be acceptable.

The exterior panel of the door shall be pan formed, shall be a minimum of 1 5/8" thick, and shall be constructed of fire apparatus quality stainless steel sheet material. The outer pan shall be double flanged, in and down, to provide full perimeter support for the interior panel.

All compartments that have double doors shall have the interior panel offset on the interior of the second door to allow the first door to shut tightly against the offset portion. Any compartments with double doors shall not require a center door jamb thereby allowing full, unobstructed access to the compartment.

28-20-1000

INNER DOOR PANEL - ALUMINUM TREADBRITE

The interior panel of the door shall be constructed of aluminum treadbrite and shall be removable for access to the interior of the door and to allow mounting equipment to interior door panel. Interior door panels that are permanently welded or glued into place shall not be acceptable. The use of painted or sprayed "bed liner" type material shall not be acceptable.

28-20-1500

COMPARTMENT DOOR HINGES

All compartment doors shall have full length polished stainless steel hinge. The hinge shall have a minimum pin diameter of .25". The hinge shall be fastened to the door and to the apparatus body with stainless steel fasteners .

Fasteners used to secure the hinge shall not be visible on the exterior of the apparatus body. A dielectric isolation barrier shall be provided between the hinge and the door as well as between the hinge and the apparatus body. The hinge must be removed from both the apparatus body and compartment door during the paint process .

28-20-2100

COMPARTMENT DOOR LATCHES

All compartment door latches shall a single point center latch with double catch. The latch shall be a 'slam' type latch. Use of pin type latches shall not be acceptable. The entire latch mechanism must be located inside the double pan door to prevent any possible fouling or damage to the latch in the event equipment stored in the compartment shifts. The latches shall be activated by a nondirectional stainless steel D ring handles. The handle shall be bent slightly to allow for easy grasp of the handle.

Toyne, Inc

28-20-3000

DOUBLE DOOR SECOND DOOR LATCH - CABLE OPERATED

A latch shall be provided on the interior of the second door on a double door compartment. A pull cable shall be provided on the interior of the second door of all high compartment doors to activate the latch with a gloved hand.

28-20-4000

VERTICALLY HINGED COMPARTMENT DOOR RETENTION DEVICE

Hansen 5EZ enclosed stainless steel door retention devices shall be provided on all vertically hinged compartment doors. The device shall be bolted to the door and to the apparatus with stainless steel fasteners. These fasteners shall not visible on the exterior of the apparatus body. The adjustable spring mechanism shall hold the door firm, but not rigid, in either the open or closed position. Chain, cable, or devices that are required to be manually unlatched to close, shall not be acceptable.

28-20-4500

HORIZONTALLY HINGED COMPARTMENT DOOR RETENTION DEVICE

All horizontally hinged doors shall be provided with a pneumatic lift devices of adequate rating to hold the door in the open position. The device shall be bolted to the apparatus body and the interior door liner and shall be provided with minimum 5-position adjustment brackets to allow the open height of the door to be easily adjusted.

28-20-6300

COMPARTMENT DOOR SOUND DEADENING

After the compartment door as been painted, polystyrene insulation panels shall be placed on the interior of the door between the outer skin and the removable inner liner. These panels shall provide for a more solid sounding door when closing the door. Use of sprayed-on material for sound deadening will not be permitted.

28-20-7200

COMPARTMENT DOOR WEATHER STRIPPING

All compartment doors shall be weatherstripped the entire perimeter of the compartment door opening. All weather stripping shall be heavy-duty automotive hollow core type. Sponge type materials shall not be acceptable. All weather stripping must be applied to a metal backing; clip-on type weather stripping shall not be used on the perimeter of the compartment. All double door compartments shall have a metal crimp type weather strip applied to the offset interior panel.

28-20-8000

HINGED COMPARTMENT DOOR PAINTING PROCEDURE

All hinged compartment doors that are to be finish painted must be fitted on the apparatus body prior to painting, removed and fully disassembled for painting. All hinges, latches, handles, and inner liners must

be removed for the paint process to insure proper paint coverage.

28-90-1100

STAINLESS STEEL COATED FASTENERS

All fasteners used in the finish construction of the apparatus body shall be marine grade stainless steel. Fasteners that pass through an aluminum panel shall be Magna-Gard, or equal, coated to help prevent dissimilar metal reaction and corrosion. As the Magna-Gard, or equal, coating is a "baked on" type coating providing for excellent adhesion to the fastener, spray on type coatings may be used in conjunction with the Magna-Gard, or equal, but not in place of it. As dissimilar metal corrosion is a common occurrence on all apparatus and the Magna-Gard (or similiar "baked on" finishes) coated fasteners are commercially available to all manufacturer's and is not a proprietary product, there shall be no exception to this requirement.

37-00-2300

DRIVER'S SIDE COMPARTMENTS - HIGH COMPARTMENTS

The driver's side of the apparatus body shall be provided with three (3) rescue-style compartments, one (1) full height compartment ahead of the rear wheels, one (1) full height compartment behind the rear wheels and one (1) compartment above the rear wheels.

A compartment shall be provided in front of the rear wheels. The compartment shallbe 65" high x 49" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth.

A compartment shall be provided above the rear wheels. The compartment shall be 34" high x 60 wide x 14"usable depth.

A compartment shall be provided behind the rear wheels. The compartment shall be 65" high x 48" wide with a portion of the lower section being transverse and the remaining upper section being 14" usable depth.

37-00-3300

PASSENGER'S SIDE COMPARTMENTS - HIGH COMPARTMENTS

The passenger's side of the apparatus body shall be provided with three (3) rescue-style compartments, one (1) full height compartment ahead of the rear wheels, one (1) full height compartment behind the rear wheels and one (1) compartment above the rear wheels.

A compartment shall be provided in front of the rear wheels. The compartment shallbe 65" high x 49" wide with the lower 28" of the compartment being 26" usable depth and the remaining upper section being 14" usable depth.

A compartment shall be provided above the rear wheels. The compartment shall be 34" high x 60 wide x 14"usable depth.

A compartment shall be provided behind the rear wheels. The compartment shall be 65" high x 48" wide with a portion of the lower section being transverse and the remaining upper section be-ing 14" usable

depth.

39-05-0600

REAR COMPARTMENT

A single full height rear compartment shall be provided on the rear of the apparatus. The compartment shall be open transverse style, into the right and left side compartments. The depth of the rear compartment, measuring from the door opening to the compartment's back wall, shall be a minimum of 30".

The compartment shall be equipped with roll up door with satin brushed finish. The door opening shall be a minimum of 36" wide and shall be the maximum height allowable with selected tank capacity.

49-90-0515

18" REAR TAILBOARD STEP

A 18" depth rear tailboard step shall be provided on the apparatus. The rear step shall be the full width of the apparatus body. The step shall be spaced from the rear face of the apparatus body a minimum of 3/4" for easy wash out.

49-90-4000

REAR STEP MATERIAL - NFPA ALUMINUM TREADBRITE

The rear step shall be constructed of NFPA complaint bright finish aluminum treadbrite.

49-99-5600

RUBRAILS - BRITE ANNODIZED ALUMINUM

Extruded aluminum rubrails shall be provided on the apparatus body sides. The rubrails shall have a brite finish with annodized coating to protect the finish. The rubrails shall provide an integrated mounting location for the L.E.D. side marker lights as well as the reflectors. The rubrails shall be spaced from the apparatus body a minimum of 1/4" with poly spacers.

The rubrails must be bolted on to the apparatus body to allow easy replacement if damaged. Rubrails that are permanently fastened to the apparatus body by welding or any other permanent method will not be acceptable. **NO EXCEPTION WILL BE ALLOWED TO THIS REQUIREMENT.**

49-99-5625

RUBRAIL ENDS

The rubrail ends shall be 'capped' with a high impact resistant black EPDM contoured block.

50-00-0208

HOSEBED FLOORING

The floor of the hose bed shall be constructed of fiber reinforced material. The flooring shall be fabricated

of "T" beam pultrusions in parallel connected with cross slats that are first mechanically bonded and then epoxied, forming a large sheet.

The top portion of each "T" cross section shall measure 1-5/8" wide and 3/16" thick with beaded ends. The vertical portion shall be 3/16" thick, beading out at the bottom to a thickness of 1/2" and tall enough to result in an overall height of 1". The "T" sections shall be spaced 3/4" apart to allow for drainage and ventilation.

Each "T" beam shall be constructed utilizing a core of 250,000 continuous glass fiber strands that are high in resistance to tension, compression and bending. An outer sheath consisting of a continuous strand mat to prevent lineal splitting and shipping shall surround the core. The sheath shall also serve to draw the protective resin to the bar surface. Both reinforcements shall be pulled through an isophthalic polyester resin, treated with antimony trioxide for fire resistance, to form a solid length.

The flooring shall then be protected with a polyurethane coating to screen out ultraviolet rays. This gray coating shall be baked on.

50-00-1900

68" WIDE HOSEBED

The hosebed shall be 68" wide from side to side.

50-00-7000

HOSEBED CAPACITY

The hosebed shall have the capacity to carry the following hoseload:

50-03-1300

HOSEBED DIVIDER(S)

There shall be two (2) hosebed divider(s) in the main hosebed to partition off hose. The divider(s) shall be constructed of 3/16" thick aluminum plate material. The lower edge of the divider(s) have a two inch 90 degree bend toward one side and a 2" x 2" x 3/16" aluminum angle welded to the other side.

The divider(s) shall be adjustable by sliding in tracks which are recessed flush into the hosebed flooring, one on front and one on rear. The divider shall be held in place by two bolts on each end of the divider(s).

The upper rear corner of the divider(s) shall have a minimum of a 3" radius cut.

50-03-2700

HOSEBED COVER WITH VELCRO FASTENERS

A heavy duty vinyl coated nylon hosebed cover shall be provided to protect the hoseload from the weather. The cover shall extend from the front of the hosebed to the rear and then extend downward to cover the exposed rear of the bed and from the left side to the right side of the hosebed.

The cover shall have a double reinforced area where the cover comes into contact with the upper rear corners of the hosebed dividers. The cover shall be secured to the apparatus using velcro on the sides and lift dots on front.

The rear of the cover shall be secured to the apparatus using positive mechanical latches.

50-03-6200

HOSEBED COVER - RED

The hosebed cover shall be red.

50-10-2400

LOW MOUNT ENCLOSED LADDER COMPARTMENT

A ladder storage compartment shall be provided on the right side of the apparatus with an access door on the rear. The compartment shall be located below the hose bed level and shall not be located above or through the booster tank. The compartment shall be located between the booster tank and the right side compartments.

For ease of removal and replacement with limited staffing, the compartment shall be designed to carry all portable ladders vertically on their beams. Ladder racks that carry the ladders horizontally shall not be acceptable.

The compartment shall be constructed of 5052 1/8" aluminum with a brushed finish. Individual slides fabricated of 5052 H32 alloy aluminum shall be provided in the compartment on both sides to allow individual storage for all ladders. The slides shall be provided with permanently attached Rodex poly slip blocks with tapered front and rear edges allow easier loading/unloading of the ladders.

An aluminum tread plate vertically hinged door with a slam-type latch shall be provided on the compartment. The latch shall be activated by a large "D" ring control. The use of lift-and-turn or small snap type latches on this door shall not be acceptable.

All ladders shall be capable of being removed individually without disturbing the remaining ladders. The compartment shall be provided with two (2) pike pole storage brackets and a storage bracket for the 10' folding ladder.

The compartment shall have a single 5" diameter light recess mounted in the left sidewall just inside the door, activated with an automatic door switch. The light switch shall be incorporated into the door ajar warning system in the cab

50-12-1000

LADDERS

The manufacturer shall provided a three section 35' aluminum ladder, a 14' aluminum ladder with folding hooks, and a 10' aluminum folding attic ladder. All ladders shall be NFPA compliant.

Toyne, Inc

50-20-3800

LOW MOUNT ENCLOSED HARD SUCTION

Storage for hard suction shall be provided on the left side of the apparatus with access door on the rear. The compartment shall be located below the hosebed level and shall not be located above the booster tank. The compartment shall be located between the booster tank and the left side compartments.

The compartment shall be constructed of 5052 1/8" aluminum. Individual slides constructed of PVC Storage for two lengths of hard suction.

An aluminum treadbrite vertically hinged door with latch shall be provided on the rear of the compartment.

All hard suction shall be capable of being removed individually without having to disturb the remaining hard suction
.
The compartment shall have a small LED light mounted just inside the door with an automatic door switch. The light shall be incorporated into the Door Ajar warning system in the cab

50-20-9300

6"x 10' HARD SUCTION HOSES (2)

Two (2) sections of 6" diameter x 10' length clear lightweight PVC hard suction hose shall be provided,

50-21-0750

HARD SUCTION HOSE COUPLINGS - NST

The hard suction shall be coupled long handle female National Standard Thread x rocker lug male National Standard Thread.

50-21-0800

HARD SUCTION - KOCKEK

The hard suction shall be Kockek brand.

51-05-0100

COMPARTMENT SHELF TRACKS - ALUMINUM

Five (5) sets consisting of two (2) heavy-duty aluminum Uni-Strut tracks shall be provided in specified compartments, one for each end of shelf. The tracks shall not be welded to the apparatus body. The Uni-strut tracks shall allow the shelving to be positioned at any location in the compartment by simply loosing a bolt on each end of the shelf, pushing inward on the bolt, and sliding the shelf to the desired location.

52-01-9000

COMPARTMENT SCBA TRACKS - HORIZONTAL

Toyne, Inc

One (1) sets consisting of two (2) heavy-duty horizontally mounted tracks shall be provided in specified compartments,. The tracks shall not be welded to the apparatus body. The Uni-strut tracks shall allow the SCBA brackets to be positioned at any location in the compartment by simply loosing a bolt on the top and bottom of the bracket, pushing inward on the bolt, and sliding the bracket to the desired location.

52-02-1300

WHEELWELL SPARE CYLINDER COMPARTMENTS - 8 CYLINDERS TOTAL

Four (4) individual spare SCBA cylinder compartments shall be provided, located two (2) on each side of the apparatus, one (1) forward of the rear axle and one (1) behind the rear axle. **Each compartment shall hold two cylinders for a total storage capacity of 8 cylinders**

52-02-2080

WHEELWELL SPARE CYLINDER COMPARTMENT DOORS - POLISHED STAINLESS

Polished stainless steel access doors shall be provided on each spare cylinder compartment in the wheelwell. The exterior of the door shall have a highly polished finish.

52-02-2100

SCBA CYLINDER RETENTION STRAPS

A 1" wide loop of high visibility yellow webbing shall be installed in each wheelwell spare cylinder compartment for each cylinder to be stored in the compartment. The loop shall be designed to loop around the cylinder valve and prevent the cylinder from sliding out of the compartment if the door is not latched or fails.

52-15-0150

TURTLE TILE FLOOR MATS

All compartment floors shall be provided with 3/4" thick Turtle Tile modular 12' x 12" square tiles with perforated top surface for ventilation and air circulation. The tiles shall be easily removable for cleaning the compartment. The tiles shall interlock into each other to form a "one piece" floor liner.

52-15-0176

TURTLE TILE - BLACK

The Turtle Tile shall be black in color.

55-50-1950

FOLDING ACCESS STEPS

Southpark model LFS46ZC chrome plated folding access steps shall be provided in areas listed in these specifications. All access steps provided on the apparatus shall support a minimum static load of 500 lbs. and be mounted in accordance to recommended mounting procedures as outlined by NFPA 1901. The steps shall be **minimum** of 6.5" wide x 6.5" depth. The steps shall be attached to the apparatus using stainless steel bolts with locking type nuts.

Toyne, Inc

55-50-1991

LEFT REAR ACCESS STEPS

Three NFPA compliant folding steps shall be provided on the rear of the apparatus on the left side.

56-00-0050

NFPA KNURLED FINSH HANDRAILS

All handrails shall be 1 1/4" diameter extruded aluminum "knurled finish" with chrome plated stanchions. Rubber gaskets shall be provided between the stanchions and any painted surfaces. The rails shall comply with NFPA 1901.

56-00-0200

REAR VERTICAL HAND RAILS

Two NFPA compliant handrails shall be provided, one each side of the apparatus body on the rear for boarding the rear step.

56-00-0526

LEFT REAR GRAB RAIL

A 12" NFPA compliant horizontal handrail shall be provided on on the left rear of the apparatus towards the rear of the hosebed.

56-00-1000

48" INTERMEDIATE REAR HORIZONTAL HAND RAIL

A 48" intermediate horizontal handrail shall be provided on the rear of the apparatus.

59-01-1000

NFPA 1901 CERTIFIED 12 VOLT ELECTRICAL SYSTEM

The 12-volt apparatus body electrical system shall be provided and shall be in compliance with NFPA 1901 testing and certification procedures as follows:

NFPA MINIMUM ELECTRICAL LOAD DEFINITION

The NFPA 1901 defined minimum electrical load shall consist of the total amperage required to si-multaneously operate the following in a stationary mode:

1. Propulsion engine and transmission.

2. The clearance and marker lights.

3. Communication equipment. 5 amp default.

4. Illumination of all walking surfaces, the ground at all egress points, control and instrumentation panels and 50% of total compartment lighting.

5. Minimum warning lights required for "blocking right of way" mode.

6. The current to simultaneously operate and fire pump and all specified electrical devices.

7. Anything defined by the purchaser, in the advertised specifications, to be critical to the mission of the apparatus.

RESERVE CAPACITY TEST

The first electrical test to be performed will be the **Reserve Capacity Test**. All items listed in NFPA Minimum Load Definition shall be activated with the engine shut off. After 10 minutes of operation, the items 1-7 shall be deactivated. After deactivation, the battery system shall have ample reserve to start the engine.

ALTERNATOR PERFORMANCE TEST AT IDLE

The second electrical test to be performed shall be **Alternator Performance Test at Full Load**. All electrical loads shall be activated with the engine running up to the governed rpm for two hours. During the test, the system voltage shall not drop below 11.7 volts or have excessive battery discharge for more than 120 seconds. Any loads not defined in the NFPA Minimum Electrical Load may be load managed to pass test.

TEST CONDITIONS

All electrical testing shall be performed with the engine compartment at approximately 200 degrees.

12-VOLT WIRING SYSTEM

All 12-volt electrical wiring shall be SXL cross link rated to carry 125% of the maximum current for which the circuit is protected. The wire shall be of sufficient size so that voltage drop in any electrical device shall not exceed 10%. All wiring shall be color, number, and function coded with the number and function being printed every three inches along the entire length of all apparatus body wires (as required by NFPA 1901). All wiring shall be routed through heavy-duty PVC split loom, securely attached and protected against heat, oil, and physical damage. All locations where the wire passes through a body panel shall be protected with electrical grommets

All connections shall be made using mechanical connectors and be screwed to terminal or junction box with machine screws. Wire nut, insulation displacement, or piercing connections shall not be used.

All circuits shall be provided with properly rated low voltage over current protective devices of the automatic reset type.

A removable bulkhead shall that extends from the floor to the ceiling of both side rear compartments shall be provided to protect rear wiring.

59-20-0100

MASTER BATTERY DISCONNECT

A Cole Hersee model 2484-16 master battery disconnect switch shall be provided, mounted within easy reach of the driver when seated. The switch shall be wired between the starter solenoid and the remainder of the electrical loads on the apparatus. The batteries shall be connected directly to the starter solenoid. The alternator shall be wired directly to the batteries through the ammeter shunt if one is provided, and not through the master load disconnect switch.

A green 'battery on' indicator light shall be provided in clear view of the driver. The light shall be mounted in a manner that will not impair the drivers vision or reflect onto the windshield.

59-21-0101

LICENSE PLATE LIGHT/BRACKET

An Arrow model 437-00-332 chrome plated license plate light shall be provided on the rear of the apparatus. The light shall function with the head light switch.

A license plate mounting bracket shall be provided that spaces the license plate away from the apparatus body.

59-22-1000

CLEARANCE LIGHTS/REFLECTORS

All apparatus body clearance lights shall be LED style. All lower clearance lights and reflectors shall be mounted in a manner that provides protection from damage, and shall comply with FMVSS-108 regulations.

59-22-3000

MID-MOUNTED SIDE TURN SIGNAL - L.E.D.

A mid-mounted amber LED side turn signal shall be provided in the mid section area of the apparatus on both sides. The low profile signal shall be recessed into the side rubrail for protection.

59-23-0100

PUMP COMPARTMENT LIGHTS (2)

Toyne, Inc

Two Weldon 2025 compartment lights shall be provided to illuminate the iinterior of the pump compartment. The lights shall function with the pump operators gauge panel lights.

59-23-5000

ENGINE COMPARTMENT LIGHT

A Weldon model 2025 light shall be provided and mounted over the engine on the engine compartment wall. An on/off switch shall be provided on the light to activate it.

60-01-1425

ILI - LED COMPARTMENT LIGHTING

Each apparatus body compartment shall have one ILI track type L.E.D. light vertically mounted in the compartment. The lights shall be constructed of an unbreakable type clear poly type flexible material housed in an aluminum extrusion.

A compartment that is considered a 'full height' compartment shall have a 48" long light section and a 'low height' or above wheel compartment shall have a 18" long section.

The lights shall function automatically and independently of other compartments when the compartment door is opened. **Compartment lighting systems that are controlled by a single, dash mounted switch are not acceptable**.

60-01-1500

COMPARTMENT LIGHT SWITCHES

Each hinged apparatus body door compartment shall have a magnetic style reed indicator switch. Each switch shall be hermetically sealed rated to 10,000,000 cycles. The reed shall be potted in the contact housing with polyurethane and the housings shall be molded fire retardant ABS plast-ic. The contact and magnetic housing shall snap-lock in the body material, one on the body and one in the door.

Each roll up door shall have an integral door open indicator magnet in the lift bar. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

The compartment lights shall function automatically when the door is opened. A master compart-ment light switch shall not be acceptable.

60-01-2100

DOOR AJAR INDICATOR - L.E.D.

A 1" X 2" RED LED flashing light shall be provided in the cab in clear view of the driver to warn of an open compartment or personnel door.

60-01-5000

PERIMETER/STEP LIGHTS

There shall be five Truck-Lite model 40 underbody perimeter lights furnished and installed. The lights

shall be shock mounted and have an unbreakable polycarbonate lens and housing. The light shall be sealed to help prevent moisture from entering the light. The lights shall be located one under each side of the front of the body, one each side under the chassis cab steps and one under the rear step to illuminate the ground around the truck. The ground lights shall be activated with the parking brake.

All runningboards, walkways and steps shall be properly illuminated to NFPA standards.

60-03-1652

KUSSMAUL 20/20 BATTERY CHARGER

A Kussmaul Auto-Charge 20/20 model 091-20/20 fully automatic battery charger with 20 amp output shall be installed on the apparatus. Remote voltage sensing shall be provided to compensate the charger output for the voltage drop in the charging wires. A 0-25 ampere meter shall be provided on the charging unit to indicate charge rate.

60-03-1703

KUSSMAUL AUTO-PUMP AIR COMPRESSOR

A Kussmaul Auto-Pump 120 volt model 091-9B-1 shall be provided on the apparatus. The compressor have a .76 cfm open flow with a maximum pressure of 100 psi. The pressure switch shall be pre-set at 70 psi cut-in and 90 psi cut out.

60-04-2000

AUTO-EJECT SHORELINE CONNECTION

A Kussmaul 20 amp 120 volt Super Auto-Eject model 091-55-20-120 shall be provided. The unit shall automatically eject the connecting plug when the engine is cranked.

60-04-2030

AUTO-EJECT COVER - YELLOW

The Auto-Eject shall have a springloaded cover yellow in color

60-04-2060

AUTO-EJECT MATING PLUG

A NEMA 5-15P mating female cord end shall be shipped loose with the apparatus to allow the Fire Department to connect cord end to a Fire Department provided charging cord.

60-04-2100

120 VOLT SHORELINE CONNECTION LOCATION

The 120 volt shoreline connection shall be located under the drivers door.

60-10-1900

WHELEN TRI-CLUSTER TAILLIGHTS - L.E.D. - INCANDESCENT

Whelen 60R00BRR 4" x 6" LED taillights and 60A00TAR 4" x 6" LED turn signals shall be provided. The

backup lights shall be 4" x 6" clear incandescent. A polished trim housing shall be provided, one each side for mounting the tail lights, turn signal lights, and backup lights.

60-10-7000

CENTER MOUNTED "THIRD" BRAKE LIGHT

A rear center mounted third brake light shall be provided. The light shall be wide profile (minimum 12" wide) red LED type for low amp draw.

60-15-0100

BACKUP ALARM

A Code 3 (or equal) model DAP50 97db backup alarm shall be provided and shall automatically activate when the apparatus transmission is placed into reverse.

The backup alarm shall exceed all NFPA1901 and SAE J994 Type D requirements and testing.

64-80-0200

DASH MOUNTED SWITCH PANEL FOR COMMERCIAL CHASSIS

A dash mounted control console shall be provided for all warning light switching, scenelighting, and step light switches.

A single Master Optical Warning Device switch shall be provided that will activate all Minimum Optical Warning Lighting through a single switch. Individual switches shall not be provided for any Minimum Optical Warning Lighting to insure total compliance to the warning lighting requirements defined in NFPA 1901. All lighting controlled by this switch shall not be subject to load management.

Any warning lights that are installed on the apparatus that are not required to meet the Minimum Optical Warning Lighting shall be subjected to load management and shall have individual switches to activate/de-activate the warning light.

All switches shall be clearly labeled as to their function.

65-03-7210

ZONE A UPPER WARNING LIGHTING

A Code 3 model 2158NFPA2 LED lightbar shall be mounted on the top of the cab roof. The lightbar shall be 58" in length and mounted with low profile stainless steel brackets.

The lightbar shall be divided into four sections:

The center section on the left side shall have a red LED OPTIX lighthead. The center section on the right side shall have a blue LED OPTIX lighthead.

The outer section on the left shall have five red LED lightheads. Three shall shall be LED-X and two shall

be OPTIX lightheads.

The outer section on the right shall have five blue LED lightheads. Three shall shall be LED-X and two shall be OPTIX lightheads.

65-30-0100

ZONES C, B, & D UPPER WARNING LIGHTING

Zone C Rear Upper Lighting

Two Code 3 model 550 (B1276) rotating beacons with 50 watt fast rotators, one each side. The Drivers side lens shall be amber and the Officers side shall be red.

Zone B Right Side Upper Lighting

This area shall be covered by the outboard rotator of the lightbar in Zone A upper lighting and the 550 beacon in Zone C rear upper lighting.

Zone D Left Side Upper Lighting

This area shall be covered by the outboard rotator of the lightbar in Zone A upper lighting and the 550 beacon in Zone C rear upper lighting.

65-65-5001

ZONE A LOWER WARNING LIGHTING - FRONT

Two Code 3 Prizm 4"x6" L.E.D.'s shall be mounted on the lower front area of the apparatus, one each side. The driver's side shall be a model 468RBZ (red) and the officer's side shall be a model 468BBZ (blue).

A chrome bezel shall be provided around the lights.

65-71-8200

ZONES B & D LOWER WARNING LIGHTING - SIDES

Zone B Right Side Lower Lighting

Three Code 3 model OPTIX-3 red LED lights shall be provided on the right side. An aluminum bezel shall be provided around the lights. One red light shall be mounted as low and as far for-ward on the apparatus cab as possible and one red light shall be mounted as low and as far rear-ward as possible on the apparatus body. The thirs shall be mid mounted.

Zone D Left Side Lower Lighting

Three Code 3 model OPTIX-3 red LED lights shall be provided on the left side. An aluminum bezel shall be provided around the lights. One red light shall be mounted as low and as far for-ward on the apparatus

cab as possible and one red light shall be mounted as low and as far rear-ward as possible on the apparatus body. The third shall be mid mounted.

65-77-8301

ZONE C LOWER WARNING LIGHTING - REAR

Two Code 3 Prizm model 468 4"x6" L.E.D.'s shall be mounted on the lower rear area of the apparatus, one each side. The driver's side shall have a 468RBZ (red) light and the passenger's side shall have a 468BBZ (blue).

A chrome bezel shall be provided around the lights.

67-01-0400

CODE 3 NASL39 ARROWSTICK

A Code 3 model NESL39 39" 8 lamp L.E.D. Arrowstick shall be provided and mounted on the rear of the apparatus. A NASL8DC control head shall be provided. The controller shall be capable of the following functions:

Arrow-left, Arrow-right, Center-out, Alternating flash, Fast/slow arrow speed control, and hi/lo intensity.

The Arrowstick shall be subject to load management shedding to comply with NFPA 1901.

68-01-0195

CODE 3 V-CON 3672 SIREN

A Code 3 model 3672 V-Con siren shall be provided and mounted in the cab.

The siren shall have wail, yelp, hyper-yelp, and air horn tones as well as public address (PA) and shall be capable of radio rebroadcast. A hard-wired microphone shall be provided.

69-01-1000

100 WATT SPEAKER

A 100 watt speaker shall be provided and recessed into the front bumper. The model of speak-er installed shall be designed to fit bumper type.

74-45-0200

UNITY AG-6 DECK/HOSEBED LIGHTS

Two (2) Unity model AG-6 chrome plated lights shall be provided and mounted on the rear of the apparatus, one (1) each side. The lights shall be controlled by lighthead mounted switches and shall be capable of 360-degree rotation and 90 degrees above and below horizontal tilt.

The lights shall be subjected to load management shedding to comply with NFPA 1901.

80-71-1000

Toyne, Inc

HONDA EM5000 5 KW GASOLINE PORTABLE GENERATOR

A Honda EM5000SXK1A 5 kw gasoline powered portable generator shall be provided and mounted to manufacturers recommendations.

The generator shall be mounted in the right front compartment.

The generator shall have an 11 horsepower 4 stroke single cylinder OHV engine with low oil pressure alert, automatic idle switch, automatic voltage regulator, and voltmeter.

The generator shall have electric start capabilities as well as a manual recoil system. The electric start shall be connected to the chassis battery system through the master battery switch. A quick release connection shall be provided to allow the generator to be used in portable mode.
A 6.6 gallon integral gasoline tank shall be provided with the generator unit. The generator consume approximately 3/4 gallons per hour.

The exhaust shall be mounted in a manner which will direct the exhaust away from the pump operators position or any driver, officer, or crew entry doors. The exhaust shall be properly shielded, guarded, or spaced from the apparatus body to prevent thermal damage or inadvertant contact by personnel.

The generator shall have low oil pressure shutdown. A generator mounted start/stop switch shall be provided on the generator.

The generator shall be 120/240 volts AC (37.5/18.8 amps), single phase, rated at 4500 watts. The generator shall produce electric power at 60 cycles +/- 5 cycles. Except where superseded by the requirements of NFPA 1901, all components, equipment, and installation procedures shall conform to NFPA 70, National Electric Code, (NEC).

Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

OPERATION INSTRUCTIONS

Instructions that provide the operator with the essential power source operating instructions, including the power-up and the power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

A Power Source Specification Label shall be permanently attached to the apparatus near the operators control panel. The label shall provide the operator with the following information:

Rated voltage(s) and type (ac or dc)
Phase

Rated frequency (at rated voltage(s))
Rated amperage
Continous rated watts
Power source engine speed.

80-73-0100

GENERATOR MOUNTING LOCATION

The generator shall be mounted in the passenger's side front compartment.

80-73-2000

GENERATOR ROLL OUT TRAY

There shall be a roll out tray provided for the generator.. The tray shall be constructed of 3/16" aluminum. The tray shall have a 2" upward bent lip on all four sides of the tray. The corners shallbe welded and ground smooth. Heavy duty ball bearing type telescoping slides shall be provided. A positive latching mechanism shall be provided to hold the tray in either the fully open or fully closed position.

80-98-0100

GROUNDING

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding. An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC. The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor, properly sized to meet the low voltage and line voltage requirements shallbe permitted to be used.

MAIN OVERCURRENT PROTECTION DEVICE

A main overcurrent protection device shall be provided on the generator. The device shall be factory installed by the generator manufacturer.

WIRING METHODS

All fixed wiring systems shall be either metallic or nonmetallic liquid tight conduit rated at not less than

194 degrees fahrenheit or shall be type SO or SEO with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit.

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring.

All wiring shall be separated by a minimum of 12", or properly shielded, from exhaust piping and shall be separated from any fuel lines by a minimum of 6".

Electrical cord or conduit shall be supported within 6" of any junction box and at a minimum of every 24" of continous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

80-98-5100

NFPA 1901 110/220 VOLT POWER SOURCE TESTING

Electrical System Testing:

The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit closed position. This test shall be conducted after all body work has been completed.

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

NFPA Operational Test

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

The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating. The power source shall be operated at 100 percent of its nameplate voltage for a minimum of 2 hours unless the system meets category certification as defined in NFPA-1901.

80-98-5120

120/240 VOLT ELECTRICAL EQUIPMENT INSTALLATION

All 120/240 electrical equipment shall be installed by the apparatus manufacturer. This shall include any

item related to the system, including, but not limited to the following:

- Generator
- All scenelighting accessories.
- All outlets,and cord reels (where applicable)
- Breaker panel.

To maintain the integrity of the entire apparatus electrical system, all 120/240 equipment must be installed by the appratus manufacturer. Installation by the apparatus manufacturer will also allow the electrical system to be NFPA tested during the U.L. pump certification testing procedure.

Installation of any portion of the 120/240 system by a dealer or service center will not be acceptable. There shall be no exception to this requirement.

80-98-7100

BREAKER PANEL LOCATION

The breaker panel shall be located in the same compartment as the generator.

80-98-7600

BREAKER PANEL BOARD

Each individual circuit that is to be powered by the generator shall have a Branch Circuit Overcurrent Protection device (circuit breaker). The device shall be sized at not less than 15 amps in accordance with Section 240-3 (Protection of Conductors) of the NEC. If more than 6 individual branch circuits are required on the apparatus, the panelboard shall have a main breaker. The panelboard shall be readily visible and located so that there is unimpeded access to the panelboard controls.

All line voltage conductors located in the main panelboard shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When pre-wiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.

80-98-7750

LOAD BALANCING

The breaker panel shall be load balanced to allow the most efficient distribution of the AC load as possible.

80-98-7800

BREAKER PANEL LOCATION

The breaker panel shall be located _____

81-10-2600

FRC OPTIMUM 1500 WATT TELESCOPING LIGHTS(2)

Two Fire Research model OPA540-M15 top raising telescoping lights shall be mounted one on each side of the pump comaprtment.

The lightheads shall be a 1500 watt 220 volt AC and shall draw a maximum of 6.25 amps creating 35,000 lumens.

The telescoping pole shall be constructed of heavy wall anodized tube. The pole shall be secured in any raised position with a non directional advanced twist lock locking device. The twist lock mechanism shall have a knurled positive grip.

The lights shall include a three wire coiled cord which is concealed inside the telescoping pole and extended out the bottom of the pole then wired into the electrical distribution panel with an individual breaker for each light.

The lights shall be electrically tested so that they are safe for their intended use. The lights shall be certified by Underwriters Laboratories (UL) and shall meet/exceed NFPA 1901.

83-01-0800

HOUSEHOLD 5-15 RECEPTACLE(S) - (2)

There shall be one (1) household type 5-15 receptacles provided.

Wet Location

All wet location receptacle outlets shall be of the grounding type with a wet location cover and installed in accordance with Section 210-7 (Receptacles and Cord Connections) of the NEC.

All wet location receptacles shall be installed not less than 24" from the ground. Receptacles on off-road vehicles shall be a minimum of 30" from the ground. The face of any wet location receptacles shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.

Dry Location:

All receptacles located in a dry location shall be of the grounding type. Receptacles shall not be less than 30 inches above the interior floor height.

Receptacle Wiring:

All wiring for both wet and dry locations shall be routed through liquid tight flexible conduit rated at not less than 194 degrees. Each receptacle shall be wired to the panel board which shall have separate breakers for each receptacle.

Outlet Location(s):

Toyne, Inc

Household duplex type receptacles shall be provided in the following locations:

One on each side of the pump compartment.

90-00-0026

FLUID CAPACITY LABEL

A permanent plate shall be mounted in the driver's compartment specifying the quantity and type of the following fluids used in the apparatus (if applicable) for normal maintenance:

1. Engine Oil.
2. Engine Coolant.
3. Transmission Fluid.
4. Pump Transmission Fluid.
5. Pump Primer Fluid (if applicable).
6. Drive Axle Fluid.
7. Air Conditioning Refrigerant.
8. Air Conditioning Lubrication Oil.
9. Power Steering Fluid.
10. Cab Tilt Mechanism Fluid (if applicable).
11. Transfer Case Fluid.
12. Equipment Rack Fluid (if applicable).
13. Air Compressor System Lubricant.
14. Generator System Lubricant.
15. Front tire cold pressure.
16. Rear tire cold pressue.
17. Maximum tire speed ratings.

90-00-0030

OCCUPANCY LABEL

A permanent plate or label stating the maximum number of personnel allowed to ride on the apparatus at any one time, shall be provided and installed in clear view of the driver

90-00-0035

SEATED AND BELTED LABEL

Permanent plate or label shall be provided stating "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" and visible from each seated position.

90-00-0040

DO NOT RIDE LABEL

A permanent plate or label shall be attached to the appropriate areas of the apparatus stating that riding on the rear step or any exterior position on the apparatus is prohibited.

Toyne, Inc

90-00-0051

DO NOT WEAR HELMET LABEL

Permanent plate or label shall be provided stating "DO NOT WEAR HELMET WHILE SEATED" and visible from each seated position.

90-00-0060

MAXIMUM TIRE SPEED LABEL

A permanent plate or label shall be provided in the cab stating the maximum tire speed rating.

90-00-0075

LENGTH, HEIGHT, WEIGHT LABEL

A permanent plate or label shall be provided in the cab stating the overall length, height and the gross vehicle weight rating (GVWR), in tons, of the completed apparatus.

The wording on this label shall indicate that the information on the plate/lable was current at the time of manufacture and if the overall height of the apparatus changes while the vehicle is in service, the purchaser shall revise the height dimension on the plate.

90-02-2200

UNDERWRITERS LABORATORIES TESTING

The apparatus shall undergo an Underwriters Laboratories Certification Test to insure that the completed apparatus meets the requirements of NFPA #1901. The certificate shall be provided to the purchaser upon completion. Underwriters Laboratories shall also perform the required testing on the entire installed electrical system. Absolutely no self-certification by the apparatus manufacturer shall be acceptable.

90-02-2225

MANUFACTURER'S RECORD CERTIFICATION

The contractor shall supply, at the time of delivery, at least one copy of the following documents:

1. The manufacturers record of apparatus construction details, including the following information:

a. Owners name and address
b. Apparatus manufacturer, model, and serial number
c. Chassis make, model, and serial number
d. GAWR of front and rear axles
e. Front tire size and total rated capacity in pounds (kg)
f. Rear tire size and total rated capacity in pounds (kg)
g. Chassis weight distribution in pounds with water and manufacturer mounted equipment (front and rear)
h. Engine make, model, serial number, rated horsepower and related speed, and governed speed
i. Type of fuel and fuel tank capacity
j. Electrical system voltage and alternator output in amps

k. Battery make, model, and capacity in cold cranking amps (CCA)
l. Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
m. Ratios of all driving axles
n. Maximum governed road speed
o. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
p. Pump transmission make, model, serial number, and gear ratio
q. Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
r. Water tank certified capacity in gallons or liters (if applicable).
s. Aeril device type, rated in vertical height in feet, rated horizontal height in feet, and rated capacity in pounds.
t. Paint manufacturer and paint number(s)
u. Company name and signature of responsible company representative

2. Certification of slip resistance of all stepping, standing, and walking surfaces
3. If the apparatus has a fire pump, a copy of the pump manufacturers certification of suction capability.
4. If the apparatus has a pump, a copy of the apparatus manufacturers approval for stationary pumping applications.
5. If the apparatus has a pump, a copy of the engine manufacturers certified brake horsepower curve showing the maximum governed speed.
6. If the apparatus has a pump, a copy of the pump manufacturers certification of the hydrostatic test.
7. If the apparatus has a pump, a copy of the certification of inspection and test for the fire pump.
8. If the apparatus has an aerial device, the certification of inspection and test for the aerial device.
9. If the apparatus has an aerial device, all technical information required for inspections to comply with NFPA 1914.
10. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
11. If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation
12. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
13. Written load analysis and results of the electrical system performance tests
14. When the apparatus is equipped with a water tank, the certification of water tank capacity

90-02-2410

VEHICLE ROLLOVER STABILITY

The apparatus chassis shall be equipped with a stability control system and shall be certified to NFPA 1901 Rollover Stabillity requirements.

90-02-3005

VEHICLE DATA RECORDER (VDR)

Toyne, Inc

The apparatus shall be equipped with an on-board Vehicle Data Recorder (VDR) . The recorder shall be capable of recording the following data, in this order, at a minimum of once per second:

- Vehicle speed (MPH).
- Acceleration (from speedometer) (MPH/Sec)
- Deceleration (from speedometer) (MPH/Sec)
- Engine speed (RPM)
- Engine throttle position (% of throttle)
- ABS event (on/off)
- Seat occupied status (occupied yes/no by position)
- Seat belt status (buckled yes/no by position)
- Master optical warning device switch (on/off)
- Time (24 hour)
- Date (year/month/day)

The data shall be stored at the sampling rate in a 48 hour loop. The system shall have sufficient memory to record 100 engine hours with of minute by minute summary data showing the data listed above. When the memory capacity is reached, the system shall erase the oldest data first..

All data stored in the VDR shall be password protected, uploadable by the user to a computer and importable to into a data management software package. that shall be provided with the apparatus. The software shall be both "Windows" and "Apple" compatible. The software shall produce the following formatted reports from the uploaded data:

- Daily log for the time the engine is runningfor a given date (minute by minuteoutput of all values.
- Weekly summary (maximum values each hour for each day of the week).
- Monthly summary (maximum values each day for each day of the month)

The contractor shall supply, at the time of delivery, at least one copy of the following documents:

15. The manufacturers record of apparatus construction details, including the following information:

v. Owners name and address
w. Apparatus manufacturer, model, and serial number
x. Chassis make, model, and serial number
y. GAWR of front and rear axles
z. Front tire size and total rated capacity in pounds (kg)
aa. Rear tire size and total rated capacity in pounds (kg)
bb. Chassis weight distribution in pounds with water and manufacturer mounted equipment (front and rear)
cc. Engine make, model, serial number, rated horsepower and related speed, and governed speed
dd. Type of fuel and fuel tank capacity
ee. Electrical system voltage and alternator output in amps
ff. Battery make, model, and capacity in cold cranking amps (CCA)

gg. Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
hh. Ratios of all driving axles
ii. Maximum governed road speed
jj. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
kk. Pump transmission make, model, serial number, and gear ratio
ll. Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
mm. Water tank certified capacity in gallons or liters (if applicable).
nn. Aeril device type, rated in vertical height in feet, rated horizontal height in feet, and rated capacity in pounds.
oo. Paint manufacturer and paint number(s)
pp. Company name and signature of responsible company representative

2. Certification of slip resistance of all stepping, standing, and walking surfaces
3. If the apparatus has a fire pump, a copy of the pump manufacturers certification of suction capability.
4. If the apparatus has a pump, a copy of the apparatus manufacturers approval for stationary pumping applications.
5. If the apparatus has a pump, a copy of the engine manufacturers certified brake horsepower curve showing the maximum governed speed.
6. If the apparatus has a pump, a copy of the pump manufacturers certification of the hydrostatic test.
7. If the apparatus has a pump, a copy of the certification of inspection and test for the fire pump.
8. If the apparatus has an aerial device, the certification of inspection and test for the aerial device.
9. If the apparatus has an aerial device, all technical information required for inspections to comply with NFPA 1914.
10. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
11. If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation
12. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
13. Written load analysis and results of the electrical system performance tests
14. When the apparatus is equipped with a water tank, the certification of water tank capacity

90-02-3015

SEATBELT WARNING SYSTEM

The apparatus shall be equipped with a seatbelt warning system. The system shall consist of an audible warning device that can be heard at all seating positions that are designed to be occupied while the vehicle is in motion as well as a visual display visable to the driver showing each seating position. The warning system shall be activated anytime the parking brake is released or the automatic transmission is not in park

The system shall display seating position lights as follows:

- Green (buckled/senses occupant)
- Red (buckled/no occupant)
- Red (unbuckled/senses occupant)
- Dark (unbuckled/no occupant)

n on-board Vehicle Data Recorder (VDR) . The recorder shall be capable of recording the following data, in this order, at a minimum of once per second:

- Vehicle speed (MPH).
- Acceleration (from speedometer) (MPH/Sec)
- Deceleration (from speedometer) (MPH/Sec)
- Engine speed (RPM)
- Engine throttle position (% of throttle)
- ABS event (on/off)
- Seat occupied status (occupied yes/no by position)
- Seat belt status (buckled yes/no by position)
- Master optical warning device switch (on/off)
- Time (24 hour)
- Date (year/month/day)

The data shall be stored at the sampling rate in a 48 hour loop. The system shall have sufficient memory to record 100 engine hours with of minute by minute summary data showing the data listed above. When the memory capacity is reached, the system shall erase the oldest data first..

All data stored in the VDR shall be password protected, uploadable by the user to a computer and importable to into a data management software package. that shall be provided with the apparatus. The software shall be both "Windows" and "Apple" compatible. The software shall produce the following

formatted reports from the uploaded data:

- Daily log for the time the engine is runningfor a given date (minute by minuteoutput of all values.
- Weekly summary (maximum values each hour for each day of the week).
- Monthly summary (maximum values each day for each day of the month)

The contractor shall supply, at the time of delivery, at least one copy of the following documents:

15. The manufacturers record of apparatus construction details, including the following information:

qq. Owners name and address
rr. Apparatus manufacturer, model, and serial number
ss. Chassis make, model, and serial number
tt. GAWR of front and rear axles
uu. Front tire size and total rated capacity in pounds (kg)
vv. Rear tire size and total rated capacity in pounds (kg)
ww. Chassis weight distribution in pounds with water and manufacturer mounted equipment (front and rear)
xx. Engine make, model, serial number, rated horsepower and related speed, and governed speed
yy. Type of fuel and fuel tank capacity
zz. Electrical system voltage and alternator output in amps
aaa. Battery make, model, and capacity in cold cranking amps (CCA)
bbb. Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
ccc. Ratios of all driving axles
ddd. Maximum governed road speed
eee. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
fff. Pump transmission make, model, serial number, and gear ratio
ggg. Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
hhh. Water tank certified capacity in gallons or liters (if applicable).
iii. Aeril device type, rated in vertical height in feet, rated horizontal height in feet, and rated capacity in pounds.
jjj. Paint manufacturer and paint number(s)
kkk. Company name and signature of responsible company representative

2. Certification of slip resistance of all stepping, standing, and walking surfaces
3. If the apparatus has a fire pump, a copy of the pump manufacturers certification of suction capability.
4. If the apparatus has a pump, a copy of the apparatus manufacturers approval for stationary pumping applications.

5. If the apparatus has a pump, a copy of the engine manufacturers certified brake horsepower curve showing the maximum governed speed.
6. If the apparatus has a pump, a copy of the pump manufacturers certification of the hydrostatic test.
7. If the apparatus has a pump, a copy of the certification of inspection and test for the fire pump.
   If the apparatus has an aerial device, the certification of inspection and test for the aerial device.
   If the apparatus has an aerial device, all technical information required for inspections to comply with NFPA 1914.
   If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
   If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation
   Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
   Written load analysis and results of the electrical system performance tests
   When the apparatus is equipped with a water tank, the certification of water tank capacity

90-02-3025

OCCUPIED SEATING POSITIONS -(2)

There shall be two seating postions designated for use while the vehicle is in motion.

90-02-3210

FIRE HELMET MOUNTINGS

Fire helmets will be stored in an exterior compartment and will not be carried in the apparatus cab.

91-00-0200

PAINT PROCEDURE - PPG DELFLEET BASE COAT/CLEAR COAT

All interior compartment surfaces shall remain # brushed stainless steel. There shall be no paint or any other type of coating on the interior compartment surfaces. Standard mill finish, DA finish or swirled finish shall not be accepted. Exteriors surfaces that are to be painted are listed in the apparatus body portion of this specification.

All seams or flanges on the apparatus body shall be caulked or properly sealed to prevent moist-ure accumulation in flanged areas.

The following paint process refers to the apparatus compartment doors and painted body sufraces only:

PAINT PROCESS:

The apparatus body paint procedure shall consist of an eight (8) step finishing process as follows:

1. Manual Surface Preparation: All exposed metal surfaces on the apparatus exterior shall be thoroughly cleaned as per SSPC-SP1. All imperfections on the exterior metal surface shall be removed or filled prior to the priming process. All exposed metal shall be thoroughly abraded using a dual orbital air power sander as per SSPC-SP3.

2. Cleaning and Treatment: All surfaces shall be chemically cleaned using PPG DX436 was and grease remover cleaning agent to remove all dirt. Oil, grease and metal oxides to ensure proper adhesion as per SSPC-SP1.

3. Self-etching Primer Application: PPG Delfleet F3960 two component acid etching primer shall be applied to the bare metal as per bulletin DFT-041.

4. Primer/Surfacer Application: PPG K36 two component urethane primer/surfacer shall be applied to the acid etching primer.

5. Dual Orbital Sanding: The primer/surfacer shall be thoroughly sanded to a superior smooth surface.

6. Cleaning: After sanding in step #5, all surafces shall be chemically cleaned again using PPG DX436 was and grease remover to remove all oil and dirt. The surface to be painted shall be clean of all oil, grease, and dirt to ensure proper adhesion as per SSPC-SP1.

7. Primer Sealer Application: PPG Delfleet F3975 two component urethane primer/sealer shall be applied over the thoroughly sanded and cleaned primer/surfacer as per bulletin DFT-054.

8. Topcoat Application: Two coats of PPG Delfleet FBCH basecoat color two component polyurethane paint shall be applied to the primer sealer as per bulletin DFT-001. The base color shall be followed by two coats of PPG Delfleet F3905 two component polyurethane clearcoat finish as per bulletin DFT-055.

DRY FILM TESTS

The apparatus manufacturer shall perform dry film readings on the painted apparatus to insure adequate paint thickness. The total dry film readings shall be a minimum of 6.4 mils average. These readings must be measured with an ETG ferrous/nonferrous digital dry film thickness mea-surement instrument. Readings must be taken from a minimum of 12 seperate locations on the apparatus body. The apparatus manufacturer must record these tests and make them available to the purchaser upon request.

PAINT PROCESS SYSTEM AUDIT

The apparatus manufacturer shall strictly follow the documented paint application procedure as provided by the paint manufacturer. The paint manufacturer shall also perform an annual audit of the paint process.

91-00-0700

PPG CERTIFIED 10 YEAR PAINT WARRANTY

The apparatus body exterior finish paint shall have a 10 year warranty per the terms and conditions of the PPG written warranty. The warranty shall be certified by the manufacturer of the paint. Documentation of this shall be provided. Any warranty that is extended by the apparatus manufacturer and not backed

by the paint manufacturer will not be acceptable.

91-00-0800

ELECTROLYSIS CORROSION CONTROL

The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

91-00-4100

APPARATUS BODY UNDERCOATING

The apparatus body shall be undercoated after assembly is completed. A bituminous based automotive type undercoat shall be used. Care shall be taken to avoid undercoat application to items that would hinder normal maintenance.

91-00-9000

COMPARTMENT INTERIORS - BRUSHED STAINLESS FINISH

The compartment interiors shall be brushed stainless steel # 4 finish. The polished brushed finish shall be as provided by the manufacturer of the material.

Interiors with any type of paint, sprayed-on coatings, DA finish, or standard "mill finsish" will not be acceptable.

91-02-0100

LETTERING

The Fire Department shall provide and install all vehicle lettering and numbering.

91-04-0200

6" NFPA REFLECTIVE STRIPE

A 6" reflective stripe shall be applied to the apparatus. The stripe shall be applied to a minimum of 50% of the length of the apparatus on each side, 50% across the rear and 25% across the front of the apparatus. The stripe shall comply to NFPA 1901 requirements.

91-04-1705

PRIMARY REFLECTIVE STRIPE COLOR - WHITE

The primary reflective stripe shall be 680-10 white.

91-04-9500

REFLECTIVE STRIPE - HORIZONTAL

The reflective stripe shall be applied in a straight horizontal line from front to rear. The height of the stripe on the chassis cab and the body shall be as close as possible.

91-05-6100

INNER CAB DOOR REFLECTIVE STRIPING - 2 DOOR

A minimum of 100 square inches of reflective material shall be provided on the inner door liner of each cab door.

91-11-1622

REAR CHEVRON STRIPING - DIAMOND GRADE

A minimum of 50 percent of the rear vertical surface of the apparatus shall be be covered with 6 inch alternating 983-71 red and 983-23 fluorescent yellow green "Diamond grade" retroreflective striping. The striping shall slop downward away from the centerline of the apparatus at a 45 degree angle.

The retroreflective material shall conform to the requirements of ASTM D 4956 "Standard Specification for Retroreflective Sheeting for Traffic Control", Type I or better.

94-75-4600

ENGINE EXHAUST

The exhaust pipe from the engine shall be ahead of the rear wheels. A shield shall be provided between the apparatus body and the exhaust pipe if necessary to deflect heat away from the body. The exhaust system shall be designed and installed by the chassis manufacturer to comply with EPA equipment requirements.

95-00-7100

CAB ENTRY STEP COVER

The OEM provided cab entry step on the side opposite the fuel tank shall be removed from the chassis provided brackets and replaced with a fabricated aluminum treadbrite "SINGLE STEP" step assembly.

FUEL TANK/STEP COVER

The OEM provided cab entry step on the same side as the fuel tank shall be removed from the chassis provided brackets and replaced with a fabricated aluminum treadbrite "SINGLE STEP" step assembly.

95-01-0100

FRONT/REAR MUDFLAPS

Heavy duty black rubber mudflaps shall be provided on the front and rear wheels. The mudflaps shall be attached to the apparatus in the front and the rear wheel well area using heavy duty stainless steel retention straps that are secured into place using stainless steel fasteners.

95-03-0000

REAR PULLING EYES

Two rear 3/4" CRS pulling eyes shall be provided under the rear tailboard. The eyes shall have a minimum of a 3" clear opening for passing chains through the eye.

99-90-0100

"AS BUILT" APPARATUS BODY OWNERS MANUAL CD (2)

Two "as built" apparatus body owners manual CD's (compact disc) shall be provided with the apparatus. All apparatus body electrical schematics shall be provided as well as all instructional and maintenance manuals on components provided and permanently mounted on the apparatus. A copy of the final apparatus body build specifications shall also be included on the CD. The CD's shall be "read only" and shall not allow modification.

To eliminate component confusion, generic CD's with equipment that is not provided on the apparatus body shall not be acceptable.