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## **WARRANTY**

We warrant each new motorized fire apparatus manufactured by CENTRAL STATES FIRE APPARATUS for a period of ONE YEAR from the date of delivery, except for chassis and other components noted herein.

Under this warranty we agree to furnish any parts to replace those that have failed due to defective material or workmanship where there is no indication of abuse, neglect, unusual or other than normal service providing that such parts are, at the option of CENTRAL STATES FIRE APPARATUS, made available for our inspection at our request, returned to our factory or other location designated by us with transportation prepaid within thirty days after the date of failure or within one year from the date of delivery of the apparatus to the original purchaser, whichever occurs first, and inspection indicates the failure was attributed to defective material or workmanship.

The warranty on the chassis and chassis supplied components, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

This warranty will not apply to any fire apparatus that has been repaired or altered outside our factory in any way, which in our opinion might effect its stability or reliability.

This warranty shall not apply to those items that are usually considered normal maintenance and upkeep services: including, but not limited to, normal lubrication or proper adjustment of minor auxiliary pumps or reels.

This warranty is in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on our part. We neither assume nor authorize any person to assume for us any liability in connection with the sales of our apparatus unless made in writing by CENTRAL STATES FIRE APPARATUS.

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## **5 YEAR GALVANNEAL BODY WARRANTY**

CENTRAL STATES FIRE APPARATUS (CSFA) warrants to the original purchaser only, that the all Galvanneal body, fabricated by CENTRAL STATES FIRE APPARATUS, under normal use and with reasonable maintenance, will be structurally sound and will remain free from corrosion perforation for a period of FIVE (5) years.

This warranty does not apply to the following items that are covered by a separate warranty: paint finish, hardware, moldings, and other accessories attached to this body. In addition, this warranty does not apply to any part or accessory manufactured by others and attached to this body.



CENTRAL STATES FIRE APPARATUS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE GALVANNEAL BODY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

CENTRAL STATES FIRE APPARATUS will replace without charge, repair or make a fair allowance for any defect in material or workmanship demonstrated to its satisfaction to have existed at the time of delivery or not due to misuse, negligence, or accident. If CENTRAL STATES FIRE APPARATUS elects to repair this body, the extent of such repair shall be determined solely by CENTRAL STATES FIRE APPARATUS, and shall be performed solely at the factory, or at an approved facility. The expense of any transportation to or from such repair facility shall be borne by the purchaser and is not an item covered under this warranty.

CENTRAL STATES FIRE APPARATUS will not be liable for consequential damages and under no circumstances will its liability exceed the price for a defective body. The remedies set forth herein are exclusive and in substitution for all other remedies to which the purchaser would otherwise be entitled.

CENTRAL STATES FIRE APPARATUS will be given a reasonable opportunity to investigate all claims. The purchaser must commence any action arising out of, based upon or relating to agreement or the breach hereof, within twelve months from the date the cause of the action occurred.

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### **PAINT WARRANTY**

The PPG paint performance guarantee will cover the areas of the vehicle finished with the specified product for a period of FIVE (5) years beginning the day the vehicle is delivered to the purchaser.

The areas as outlined on the Guarantee Certificate, will be covered for the following paint failures:

#### **GUARANTEE INCLUSIONS:**

#### **FULL APPARATUS BODY MANUFACTURED AND PAINTED BY CENTRAL STATES FIRE APPARATUS:**

- \* Peeling or delamination of the topcoat and/or other layers of paint.
- \* Cracking or checking.
- \* Loss of gloss caused by cracking, checking, or hazing.



\* Any paint failure caused by defective PPG Fleet Finishes which are covered by this guarantee.

All guarantee exclusions, limitations, and methods of claims are covered in the full certificate provided to the original purchaser.

One (1)

### **GMC CONVENTIONAL CHASSIS**

A GMC two-door chassis per the following specifications shall be furnished:

One (1)

### **STEP SURFACE WITH ROLL OUT BATTERY TRAY**

The commercial chassis step area on the driver's side shall have slip resistant overlay material installed on each step surface. There shall be a roll out battery tray furnished below the chassis cab on the driver's side. The roll out battery tray shall have a single aluminum treadplate door.

One (1)

### **STEP SURFACE**

The commercial chassis step area on the passenger side shall have slip resistant overlay material installed on each step surface.

One (1)

### **STEP TYPE FUEL TANK**

There shall be a step type fuel tank furnished with the chassis.

One (1)

### **CHASSIS AIR FILL CONNECTION**

A quick disconnect male air-fill fitting is to be provided and installed near the drivers door entrance area. Air chuck is to be plumbed through a one way check valve, and connected to the proper air reservoir tank to fill the chassis air system. A matching female fitting is to be provided and shipped loose with the completed apparatus.

One (1)

### **FRONT MUD FLAPS**

Heavy-duty, white colored, rubber mud flaps shall be furnished and installed behind the front wheels of the vehicle. Mud flaps shall extend the full width of the front tires and are to be attached with stainless steel fasteners.

One (1)

### **REAR MUD FLAPS**

Heavy-duty, white colored, rubber mud flaps shall be furnished and installed behind the rear wheels of the vehicle. Mud flaps shall extend the full width of the rear duals and are to be attached with stainless steel fasteners.

One (1)

### **HORIZONTAL CHASSIS EXHAUST**



The chassis exhaust system shall be extended to the front of the right rear wheel.

One (1)

### **ALTERNATOR**

There shall be a 210 AMP Les-Tec alternator furnished and installed in place of the existing alternator on the chassis engine. The 210 Les-Tec alternator shall be installed and wired into the chassis electrical system.

One (1)

### **WATEROUS CS-1250 GPM SINGLE STAGE FIRE PUMP**

The centrifugal type fire pump shall be a Waterous model CS midship mounted with a rated capacity of 1250 GPM. The pump shall meet NFPA 1901 requirements.

One (1)

### **SINGLE STAGE FIRE PUMP**

A Waterous Model CSY fire pump shall be midship mounted, single stage centrifugal type. In addition to meeting NFPA 1901 requirements, it shall be constructed and mounted in accordance with the following specifications.

Fire pump shall incorporate high strength involute toothform Morse HV chain drive transmission. Benefits of the chain drive include quiet, noiseless operation at high shaft speeds, and improved power-transmitting capabilities due to the fact that the chain wraps itself halfway around the gear distributing a very uniform pattern of tooth engagement. Pump transmissions utilizing spur or helical drive gears that create high noise levels at elevated speeds and only permit minimal tooth to tooth engagement are not acceptable.

The shift engagement shall be accomplished by a freesliding collar and shall incorporate an internal locking mechanism to insure that collar will be maintained in ROAD or PUMP operation.

Suction intake arms shall be provided with removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

At time of delivery the pump shall be tested and rated as follows:

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

The impeller shaft shall be of a "separable" design to allow true separation of the transmission from the pump without disassembly or disturbing either component. Fire pumps requiring disassembly of pump body and transmission to service either component are not acceptable.



The main pump body shall be horizontally split and shall be in two sections for easy removal of the entire impeller assembly including wear rings, without disturbing setting of the pump on the chassis. Pump case halves shall be bolted together on a single horizontal plane using a single gasket.

The pump body is to be of close grain grey iron with all moving parts which come into contact with water to be of bronze or stainless steel.

The pump must be tested by the pump manufacturer for 10 minutes hydrostatically at a pressure of 500 psig. Certification by the pump manufacturer must be provided.

The pump shall be provided with a plate giving the rated flow at "capacity" and "pressure" test pressures, together with the R.P.M. of the engine at those pressures and deliveries and mounted in clear view of the pump operators panel. Data plate shall include model and serial numbers of the pump body and chain transmission, hydro and discharge test pressures, and the date of pump and transmission manufacture.

All pump components including relief valve, pump shift, and priming system shall be manufactured by the Waterous Company to insure sole source responsibility and engineered compatibility.

#### **PRIMING SYSTEM:**

The pump 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, through 20 feet of suction hose of appropriate size. It shall be capable of developing a vacuum of 22" at an altitude of up to 1000 feet.

A vacuum test with a capped suction of at least 20' long shall develop 22" of vacuum and hold a vacuum with a drop not in excess of 10" in 5 minutes.

One (1)

#### **VPE PRIMING SYSTEM**

A high capacity, electrically driven Waterous model VPE rotary vane priming pump shall be provided mounted in the pump compartment.

The priming system shall include a one-gallon oil reservoir tank that is conveniently located behind a hinged access door. Priming tank shall be properly vented so as to provide priming pump lubrication.

One (1)

#### **MANUAL CONTROL PRIMING PUMP**

Priming pump shall be activated by a mechanical/electric valve with a single pull control located at the pump operators panel area. Valve actuation may be accomplished while the main pump is operational, if necessary to assure a complete prime.



One (1)

### **PNEUMATIC PUMP SHIFT**

The pump shift shall be air operated and shall incorporate an air cylinder with an electric actuating switch to shift from road to pump and back.

The pump shift switch shall be mounted in the cab and identified as "Pump Shift" and include instructions permanently inscribed on the pump shift switch plate. The In-Cab operating switch uses a spring loaded lock to prevent it from accidentally being moved.

\*A "Pump Engaged" indicator shall be provided in the driving compartment to indicate that the pump shift has been successfully completed.

\*An "Ok to Pump" indicator shall be provided in the driving compartment to indicate that the pump is engaged, the chassis transmission is in pump gear, and the parking brake is engaged.

\*A "Throttle Ready" indicator shall be provided at the pump operators panel that indicates that the apparatus is in "OK to Pump" mode or that the chassis transmission is in neutral and the parking brake is engaged.

\*An interlock system shall be provided to prevent advancement of the engine speed at the pump operators panel unless the chassis transmission is in neutral and the parking brake is engaged, or the apparatus is in "OK to Pump" mode.

\*Controls for the pump shift are to be in the cab, and easily accessible.

One (1)

### **IMPELLER HUBS**

Impellers and impeller seal rings are to be of high grade bronze replaceable type and mounted on a stainless steel shaft supported by heavy-duty, oil lubricated "ball" bearings. Bearings shall be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. Pumps using "sleeve" type bearings are not acceptable.

The impellers shall be accurately balanced and of the mixed flow design with reverse-flow, labyrinth-type wear rings that resist water bypass and loss of efficiency due to wear. The bronze wear rings shall be easily replaceable so as to eliminate need for the replacing of the entire pump casing due to wear.

One (1)

### **MECHANICAL SHAFT SEAL**

The pump shall be equipped with self-adjusting, maintenance free, "Mechanical Shaft Seal" which is designed to be functional in the unlikely event of a seal failure. Pumps



with packing which requires periodic adjustment and/or replacement will not be acceptable.

One (1)

### **DISCHARGE PRESSURE RELIEF VALVE**

Pump pressure shall be controlled by a Waterous Fire Pump Company automatic relief valve that is capable of operation over a range of 75 to 300 psi net pump pressure. The Relief Valve shall be controlled at the pump operator's position. Relief valve shall have two controls, one for pressure adjustment and the other an on/off control. Pilot valve shall maintain set pressure until manually reset by the pump operator. Relief valves requiring pressure reset after each use of the pump are not acceptable.

Relief pilot valve orifice shall be protected from malfunction due to sand or other sediment in the water by a strainer that can be removed, cleaned, and replaced at the operator's panel while the pump is operating. A relief valves that requires orifice cleaning within or below the pump enclosure is not acceptable.

Operators panel mounted relief valve indicator lights shall be provided. Lights shall include two color-indicating lights to show position of relief valve. A green light shall indicate a fully closed relief valve and an amber light shall display when the valve begins to open.

Relief valves requiring pressure reset after each use of the pump does not meet the technical fireground operational requirement of these specifications.

One (1)

### **MANIFOLD DRAIN:**

A manifold drain valve shall be furnished with all pump drains connected to it so that the entire pump system may be drained by one control.

Drain valve assembly shall consist of a stainless steel plunger and a bronze body rigidly attached to the fire pump transmission.

A push-pull control with chrome plated "T" handle is to be provided and located at the drivers side of the pump house, properly identified as MASTER DRAIN.

One (1)

### **FIRE PUMP WARRANTY**

The Waterous fire pump shall carry the pump manufacturer's two (2) year warranty covering defective parts and workmanship. A copy of the pump manufacturer's warranty policy shall be provided with the completed apparatus.

One (1)

### **UL TEST**



The pump shall undergo an Underwriters Laboratories Incorporated test per Class A requirements of NFPA #1901 prior to delivery of the completed apparatus. The UL acceptance certificate shall be furnished with the apparatus on delivery.

One (1)

#### **ALTITUDE REQUIREMENTS**

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

One (1)

#### **PUMP COOLING LINE**

A 3/8" cooling line shall be installed to recirculate water from the pump back to the water tank, to cool the pump during pro-longed pumping operations. The cooling line shall be controlled at the operator's position with a quarter turn valve.

One (1)

#### **HEAT EXCHANGER**

A heat exchanger shall be provided on the pump driving engine cooling system. The heat exchanger shall not allow mixing of the pump driving engine coolant and water from the fire pump.

A gated line shall be installed to provide water from the fire pump to the pump driving engine heat exchanger to assist in engine cooling during pumping operations. The heat exchanger line shall be controlled at the pump operator's panel.

One (1)

#### **WATEROUS PUMP INSTALLATION**

The Waterous fire pump shall be installed in conjunction with the body manufacturing process. Fire pump installation shall include installation of the fire pump, modification and/or fabrication of new drivelines and all pump-mounting brackets. All drivelines shall be spin balanced prior to final installation.

One (1)

#### **INTAKE RELIEF VALVE**

A 2-1/2" intake relief valve preset at 125 psi shall be permanently installed on the suction side of the fire pump. The valve shall have an adjustment range of 75 psi to 250 psi, and shall be designed to automatically self-restore to a non-relieving position when excessive pressure is no longer present.

Discharge side of the intake relief valve shall be plumbed to the right side below the runningboards, away from the pump operator, and shall terminate with a 2-1/2" NST male chrome threaded adapter, marked with an engraved tag "Intake pressure relief outlet - Do Not Cap".

One (1)

#### **DRIVER SIDE STEAMER INLET**



There shall be one (1) steamer inlet furnished on the driver side of pump panel. The suction inlet shall have 6" NST thread. The suction inlet shall have a removable strainer provided inside the external inlet.

One (1)

Steamer inlet to be as short as possible to allow suction fittings to be attached without extending past the side running boards.

### **PASSENGER SIDE STEAMER INLET**

There shall be one (1) steamer inlet furnished on the passenger side of pump panel. The suction inlet shall have 6" NST thread. The suction inlet shall have a removable strainer provided inside the external inlet.

One (1)

Steamer inlet to be as short as possible to allow suction fittings to be attached without extending past the side running boards.

### **SUCTION CAP DRIVER'S SIDE**

One (1)

The driver's side suction inlet shall be equipped with a chrome-plated, long handled, cap capable of withstanding 500 PSI.

### **SUCTION CAP PASSENGER SIDE**

One (1)

The passenger's side suction inlet shall be equipped with a chrome-plated, long handled, cap capable of withstanding 500 PSI.

### **REAR SUCTION CAP**

One (1)

The rear suction inlet shall have a chrome-plated, long handled, cap capable of withstanding 500 PSI.

### **2-1/2" GATED SUCTION INTAKE DRIVER SIDE**

One (1)

A 2-1/2" independent gated suction intake shall be provided on the driver's side pump panel. Intake shall be provided with a quarter-turn valve and control. The intake shall have a 3/4" drain valve with handle. Each intake shall have chrome-plated female swivel adapter with removable internal screen and a chrome-plated plug type cap with end chain.

### **SUCTION VALVE CONTROL**

One (1)

Suction valve shall have swing type control handle located adjacent to valve.

### **2-1/2" GATED SUCTION INTAKE PASSENGER SIDE**



A 2-1/2" independent gated suction intake shall be provided on the passenger's side pump panel. Intake shall be provided with a quarter turn-valve and control. The intake shall have a 3/4" drain valve with handle. Each intake shall have chrome-plated female swivel adapter with removable internal screen and a chrome-plated plug type cap with end chain.

One (1)

### **SUCTION VALVE CONTROL**

Suction valve shall have swing type control handle located adjacent to valve.

One (1)

### **PUMP DISCHARGES**

Each gated discharge outlet shall include an Akron heavy-duty brass, quarter-turn, swing-out ball valve. All lines to have victaulic couplings or hose with stainless steel fittings installed where flex may occur to prevent cracking of the plumbing system. Each discharge shall have 3/4" cast bronze 1/4 turn drain valve complete with reinforced teflon seals, and blowout proof stem rated to 600 psi. A chrome-plated zinc handle shall be provided on each drain valve, complete with a 1" X 1 1/2" recessed identification label. Drains shall be aligned in a straight horizontal row at the lower edge of the corresponding pump panel so as to allow for ease of identification and operation. Each drain shall be labeled and numbered to correspond to the respective discharge outlet and coloring.

Individual discharge controls are to be aligned in a straight horizontal row across the pump operator's control panel, directly in-line with the corresponding discharge outlet line pressure gauges.

One (1)

### **GALVANIZED PLUMBING**

All rigid piping five-inch diameter or less shall be galvanized type with tapered thread or victaulic type couplings.

Two (2)

### **DRIVER SIDE DISCHARGE OUTLET**

Each 2-1/2" discharge outlet on the driver's side pump panel shall have a 2-1/2" quarter turn valve with control on pump operator's panel. There shall be a chrome plated 2-1/2" NST adapter that extends through the pump panel. Each discharge shall be provided with chrome-plated 30-degree discharge elbow.

Two (2)

### **MANUAL VALVE**

Discharge valve shall be swing-out type with manual control handle located on pump operator's panel.

Two (2)

### **PASSENGER SIDE DISCHARGE OUTLET**



Each 2-1/2" discharge outlet on the passenger's side pump panel shall have a 2-1/2" quarter turn, swing-out valve with control on pump operator's panel. There shall be a chrome-plated 2-1/2" NST adapter that extends through the pump panel. Each discharge shall be provided with chrome-plated 30-degree discharge elbow.

Two (2)

### **MANUAL VALVE**

Discharge valve shall be swing-out type with manual control handle located on pump operator's panel.

One (1)

### **PASSENGER SIDE REAR DISCHARGE OUTLET**

There shall be one (1) 2-1/2" discharge outlet located on the passenger's side rear of the body below the hose bed. The discharge outlet shall have a 2-1/2" quarter turn, swing-out valve with control on pump operator's panel. There shall be a chrome-plated 2-1/2" NST adapter that extends through the rear of the body. The discharge shall be provided with a chrome-plated 30-degree discharge elbow.

One (1)

### **MANUAL VALVE**

Discharge valve shall be swing-out type with manual control handle located on pump operator's panel.

Five (5)

### **2-1/2" CAPS AND CHAINS**

The following discharge outlets shall be equipped with a 2-1/2" chrome-plated cap and chain.

One (1)

### **MONITOR PROVISION**

There shall be a three-inch (3") deluge discharge above fire pump. Deluge outlet shall be plumbed with 3" quarter turn, swing out valve and 3" I.D. schedule 40 galvanized pipe with 3" NPT male thread. The three-inch valve shall have a slow close device. Deluge outlet shall have control on pump operator's panel.

One (1)

### **MANUAL VALVE WITH SLOW CLOSE**

Discharge valve shall be swing out type, with slow close and manual control handle located on pump operator's panel.

One (1)

### **MANUAL DRAIN VALVE**

Monitor shall have a 3/4" drain with individual control on side pump panel.

Four (4)

### **1-3/4" CROSSLAY(S) ASSEMBLY ABOVE PUMP**



Crosslay hosebed(s) shall be designed to carry 200 feet of 1-3/4" double jacket fire hose. Crosslay hosebed(s) shall be located above the fire pump. The floor of the crosslay hosebed(s) shall be perforated to allow for drainage. Polished stainless steel hose roller assemblies shall be provided at the sides and lower edges of the crosslay opening on each side of the apparatus body.

Crosslay discharge(s) shall be plumbed using rigid pipe or flexible high-pressure hose coupled with stainless steel fittings. The crosslay shall be provided with 2" brass valve, and a 2" 90 degree swivel adapter with 1-1/2" NST male outlet thread.

Four (4)

### **MANUAL VALVE**

Each discharge valve shall be swing out type with manual control handle located on pump operator's panel.

Four (4)

### **MANUAL DRAIN VALVE**

Each crosslay/speedlay shall have a 3/4" drain with individual control on side pump panel.

One (1)

### **TANK PUMP VALVE**

A Waterous 3-1/2" full flow ball valve shall be furnished from the tank to the pump, complete with a flexible connection and enclosed in the pump compartment.

The valve shall be manufactured by the Waterous Company and shall include a spring loaded, self-adjusting seal to preclude the need for periodic adjustment, and a chrome-plated brass ball providing durability against sand and other debris.

A built-in check valve shall be furnished in the pump to avoid the possibility of backfilling the booster tank, through the tank to pump suction line.

Tank suction is to be located in a sump assembly located below the bottom of the tank and properly baffled to prevent surging of water. A 3" cleanout plug shall be provided in the bottom of the tank sump.

One (1)

### **TANK FILL/COOLING LINE**

A gated discharge line from the pressure side of the pump to the tank shall be furnished so the tank can be filled from draft or hydrant. Valve shall have control on the operator's panel. The valve is to be two-inch (2"), swing out type ball valve and be plumbed to tank with flexible type hose.

One (1)

### **POLY BOOSTER TANK**



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 transverse swash partitions shall be manufactured of polypropylene and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions shall be constructed of polypropylene and extend from the floor of the tank 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 designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

A forward mounted sump shall be provided in the tank. The sump shall be constructed of polypropylene and be located in the left front quarter of the tank. A polypropylene pipe shall be installed that will sweep from the front of the tank to the sump location. The sump shall have a 3" N.P.T. threaded coupling on the bottom for a plug. This shall be used as a combination clean out and tank drain. An anti-swirl plate shall be located above the sump.

There shall be two standard tank outlets; one for tank-to-pump suction lines, and one for a tank fill line. All tank couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

The tank shall carry a lifetime warranty from its manufacturer.

One (1)

### **FILL TOWER**

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of polypropylene and with a minimum dimension of 8" x 14" outer perimeter. The fill tower shall be located in the left front corner of the tank. The fill tower shall have a polypropylene screen and a polypropylene hinged cover. Inside the fill tower, shall be fastened a combination vent overflow pipe. The vent overflow shall be polypropylene pipe that is designed to run through the tank and shall be piped behind the rear wheels.

One (1)

### **BOOSTER TANK**

A 1000-gallon capacity polypropylene booster tank shall be provided.

One (1)

### **BOOSTER TANK SUBFRAME**

The booster tank shall be mounted on a steel subframe. Steel subframe shall consist of two (2) longitudinal 3" x 4 pound channels and two (2) 3" x 4 pound channels welded together to form a tank retention cradle. The tank retention cradle shall prevent fore



and aft, and side to side movement of the tank. Additional 3" x 4 pound transverse crossmember channels shall be installed to support the floor of the booster tank. The crossmembers shall have a maximum spacing of 20" for the polypropylene tanks. There shall be an additional full-length longitudinal member installed in the center of the tank support area. The booster tank shall rest on heavy rubber channels that isolate the polypropylene tank from the subframe.

One (1)

### **DRIVER SIDE MOUNTED OPERATOR'S CONTROL PANEL**

All pump suction and discharge controls are to be mounted on the driver side pump operator's panel so as to permit operation of the pump from a central location.

All of the pump controls shall be clearly identified with permanently engraved plate type labels.

A full panel width polished light hood with a minimum of three Weldon model 2025 light assemblies shall be provided to illuminate the entire pump operator's control panel.

An additional polished light hood with a minimum of two Weldon model 2025 light assemblies shall be provided to illuminate the right side pump panel. Lights shall be controlled by the operator's panel light switch.

### **GAUGE PANEL**

All gauges shall be suitably enclosed and mounted on a full pump compartment width "hinged" gauge panel constructed of the same material as the pump operators control panel, allowing access to the backside of all gauges and gauge lines. Panel is to include a stainless steel piano hinge, Hartwell HTL81 flush mounted chrome plated trigger latch, and stainless steel cable end stops. Electrical wiring and all gauge lines shall be properly tie wrapped to prevent kinking or cutting of the lines when the panel is opened.

One (1)

### **EXTRUDED ALUMINUM PUMP HOUSE STRUCTURE**

The pump house structure shall be fabricated of extruded aluminum. The structure shall be welded together and have gusset plates on each corner. The pump house shall be mounted separate from the body and chassis and be bolted to the chassis frame rails.

The exposed areas of the pump house structure shall be over layed with polished aluminum treadplate.

One (1)

### **PUMP PANEL PUMP ENGAGEMENT LIGHT**



There shall be one light on the operator's panel that will come on with a successful pump engagement.

One (1)

### **PUMP PANELS**

The right and left side pump panels shall be constructed entirely of 14-gauge type 304 brushed stainless steel material. The panels are to be completely "bolted" in place for ease of removal.

One (1)

### **PUMP COMPARTMENT ACCESS DOOR**

The passenger's side pump panel shall be provided with a full panel width vertically hinged access door located in the upper portion of the side panel. This door shall be approximately 18" high and as wide as possible, and shall be constructed of polished aluminum treadplate. Two (2) flush mounted, push type latches shall be furnished to hold the door closed. The inspection door shall be attached with a stainless steel hinged and have a retainer cable attached to prevent the door from opening too far.

One (1)

### **PUMP OPERATORS PANEL**

The following equipment shall be installed on the pump operator's panel.

One (1)

### **MASTER GAUGES**

Class One #LFP410, 4-1/2" diameter liquid filled pressure gauge registering up to 600-lbs per square inch with 1/4" pipe thread connection. The gauge shall be of the type that will not be injured when subjected to a vacuum. The gauge is to have a white face with black lettering. The gauge is to be located at the right of the gauge panel and labeled "DISCHARGE" with an engraved label.

Class One #LFP410, 4-1/2" diameter liquid filled compound gauge shall be provided on the suction side of the pump registering at least 600-lbs pressure and 30-inches of vacuum. The gauge shall have a white face with black lettering. The gauge is to be located to the left of the master discharge gauge and labeled "INTAKE" with an engraved label.

One (1)

### **PRESSURE GAUGES**

Class One #LFP220, 2-1/2" diameter liquid filled pressure gauges shall be provided. The gauges are to have white faces with black lettering. The gauges shall read -30 to 600 lbs. Line pressure gauges shall be individually identified with engraved labels.

Individual line pressure gauges are to be mounted adjacent to the corresponding discharge valve control.

Four (4)

There shall be one (1) pressure gauge for each 1-1/2" discharge outlet.



Five (5)

There shall be one (1) pressure gauge for each 2-1/2" discharge outlet.

One (1)

There shall be one (1) pressure gauge for each deck gun outlet.

One (1)

### **ENGINE THROTTLE**

An electronic vernier engine control throttle shall be provided on the pump operator's control panel for the CAT electronic engine. The electronic throttle shall be positive locking, crank operated and have a quick release center button. There shall be an engraved identification label provided that reads **THROTTLE**.

One (1)

### **INFORMATION CENTER**

A Class 1 Enfo III master engine gauge and warning device shall be furnished and installed on the pump operator's panel. The device will monitor the following engine systems;

- Engine RPM display
- System voltage display and alarm
- Engine oil pressure display and alarm
- Engine water temperature display and alarm.

One (1)

### **PUMP PANEL IDENTIFICATION LABELS**

All discharges shall be provided with color-coded labels. Identification labels shall be provided at the discharge control, the discharge outlet, and at the discharge drain valve control, color-coded according to NFPA recommended standards.

One (1)

### **PUMP PANEL TANK LEVEL GAUGE**

A MC Products five light electrically operated tank level gauge shall be furnished at the pump operator's panel. The sending unit is to be easily cleaned and accessible from above the tank through a removable panel in the hosebed.

One (1)

### **UL TEST CONNECTIONS**

A pump pressure and vacuum test block assembly shall be provided and mounted at the pump operator's control panel. The test block assembly shall include plug type caps.

One (1)

### **PUMP PANEL MOUNTED TRANSMISSION TEMPERATURE GAUGE**

A transmission temperature gauge shall be installed at the pump operator's position to show temperature of the chassis transmission oil.

One (1)

### **HOSEBODY**



The apparatus hosebody is to be properly reinforced without the use of angles or structural shapes, and free from all projections that might injure the fire hose.

The main apparatus hosebody shall run the full length of the apparatus body from behind the pump panel area to the rear face of the body.

The upper rear interior of the beavertail extrusions on the right and left side shall be overlaid with brushed stainless steel to protect the painted surface from damage by hose couplings

One (1)

### **HOSEBED CAPACITY**

The hosebed will be configured to be 55 cubic feet, unless the desired hoseload requires more area.

The hosebed shall hold the following:

800' of 3" double jacket rubber lined hose

800' of 5" hose

One (1)

### **HOSEBED FLOORING**

Floors of the hosebeds are to be provided with removable slat style extruded aluminum hosebed gratings, spaced 1/2" apart for proper hose ventilation. Hosebed gratings are easily lifted out of the main hosebed for access to the top of the specified booster water tank.

Two (2)

### **MAIN HOSEBED DIVIDER**

Adjustable hosebed dividers shall be provided in the main hosebed.

The hosebed divider(s) shall be fabricated of 1/4" smooth aluminum sheet stock, pressed into a "T" shaped aluminum extrusion for added strength along the bottom edge of the divider.

The divider shall be fully adjustable, mounted using aluminum "C" channel tracks at the front and rear of the divider for full side to side adjustment.

One (1)

### **LADDER MOUNTING**

The ladders shall be mounted on the right side of the body, directly above the right side compartments, using heavy duty Cast Products cast aluminum ladder brackets and with spring loaded chrome-plated quick release type clamps. The ladder brackets shall be vertically adjustable.

One (1)

### **GROUND LADDERS FURNISHED BY BODY BUILDER**



The body builder shall furnish the ground ladders. See equipment section of this document for make and model of ladders.

One (1)

### **HARD SUCTION HOSE TRAYS**

Hard suction hoses shall be mounted in extruded aluminum, self-draining carrier trays with hold down device. The carrier trays shall be mounted one on each side of body.

One (1)

### **HARD SUCTION HOSE FURNISHED BY BODY BUILDER**

The hard suction hose shall be furnished by the body builder. See equipment section of this document for make and model of hard suction hose.

One (1)

### **PIKE POLE(S) MOUNTED ON LADDER RACK**

There shall be room for the pike pole(s) to be mounted on the ladder rack, along with the specified ladders.

One (1)

### **PIKE POLES FURNISHED BY BODY BUILDER**

The pike poles shall be furnished by the body builder. See equipment section of this document for make and model of pike poles.

One (1)

### **APPARATUS BODY**

The apparatus body compartments shall be fabricated of twelve gauge A-60 Galvanneal steel.

The side compartments shall be an integral assembly with the rear fenders.

Circular fender liners shall be provided for prevention of rust pockets and ease of maintenance.

Compartment floors shall be of the sweep out design with the floor higher than the compartment door lip.

Drip protection shall be provided above the doors by means of bright aluminum extrusion or formed bright aluminum treadplate.

The top of the compartment shall be covered with bright aluminum treadplate formed over the edges on the front, rear and outward side. The corners of the aluminum covers shall be "TIG" welded.

All screws and bolts that protrude into a compartment shall have acorn nuts installed to prevent injury and snagging.



## **FASTENERS**

All aluminum and stainless steel components shall be attached using stainless steel fasteners.

Compartment door hinges, handrails and running boards shall be attached using minimum 1/4" diameter machine bolt fasteners.

3/16" diameter fasteners shall only be used in nonstructural areas such as; door handles, trim moldings, gauge mounting, etc.

One (1)

## **BODY DIMENSIONS**

Apparatus body shall be up to 144" long and 96" wide, reference drawing for actual body length. Body compartments shall be divided into upper and lower areas with the upper area approximately thirteen-inches in depth, and the lower area approximately twenty-three inches in depth. The hose bed shall be 68" wide.

One (1)

## **APPARATUS BODY SUB-FRAME**

The apparatus body subframe shall be constructed entirely of heavy steel structural channel material.

Two full frame lengths, three-inch (3") 4 pound per foot longitudinal steel channels shall form the sides of the body subframe and sides of the water tank cradle. Subframe crossmembers shall be fabricated with three inch (3") 4 pound per foot heavy steel channel cross members welded to the longitudinal body subframe sides and the full length frame pads.

Two full frame length 1/2" x 3" flat steel frame pads shall be attached to the body subframe and rest on top of the chassis frame rails for proper frame weight distribution.

The steel frame pads, longitudinal steel channels and subframe crossmembers shall be attached to the chassis frame rails using heavy "U" bolt fasteners to allow removal of the subframe and body assembly from the chassis. There shall be a barrier provided between the subframe and body to prevent electrolysis.

A minimum of two rear platform support channels shall be provided and constructed of 4.3 lb. per foot heavy steel material. Each support channel shall have welded in gusset where the support meets the rear subframe rails.

One (1)

## **COMPARTMENT VENTS**



All body compartments shall have a minimum of one (1) louvered panel bolted into a wall to provide the proper airflow inside the compartment. There shall be a filter installed behind the louvered panel. The filter shall be accessible for cleaning by removing the louvered panel on the interior of the compartment.

One (1)

### **BODY AND PUMP HOUSE FLEX JOINT**

When equipped with a fire pump, the body and pump house shall be a separate freestanding component forming a true flex joint between the body and pump house. The intent is to allow either to be easily removed as a single unit without disturbing the other and to provide a flex joint between the two modules. Designs where the pump house and body are interjoined as a common unit do not meet the technical requirement of providing a flex joint or the reparability requirement of these specifications.

One (1)

### **WHEEL WELL LINER AND FENDERETTES**

For ease of accessibility and maintenance, wheel well panels shall be double break formed painted smooth plate that is welded in place.

To fully protect the wheel well area from road debris and to aid in cleaning, a full depth (minimum of 25") radius wheel well liner shall be provided. Wheel well liner shall be smooth galvanized steel to prevent corrosion.

The rear wheel wells shall be radius cut for a streamlined appearance. A polished aluminum fenderette shall be furnished at each rear wheel well opening, held in place with concealed stainless steel fasteners.

One (1)

### **REAR TOW EYES**

There shall be two tow eyes furnished under the rear of the body and attached directly to each chassis frame rail. There shall be a reinforcement spreader bar connecting the two tow eyes. Tow eyes are to be constructed of 3/8" plate steel with a 4" I.D. hole, large enough for passing through a tow chain end hook.

One (1)

### **APPARATUS COMPARTMENTATION**

There shall be large enclosed compartments on both sides of the body, starting at the front of the hosebody and continuing to the rear of the apparatus. These compartments shall be as large as possible, using all available space.

The aluminum treadplate compartmentation tops on each side of the body shall be extended out and downwards a minimum of .50" over the compartment doors forming a drip rail. Corners shall be TIG welded.

Lower or rear face compartments, if specified shall be provided with polished aluminum drip rails.



One (1)

## **HINGED COMPARTMENT DOOR CONSTRUCTION**

All hinged compartment doors shall be of the flush style so that the entire door fits flush against the apparatus body sides. Doors shall be designed, in the closed position, to have the painted edges protected from damage on the tops by forming the treadplate compartment tops into an extended drip edge, on the bottoms by the rub rail.

Doors shall be a minimum 2" thick, fabricated of a minimum of .125 smooth aluminum. Full panel inner compartment door liners shall be provided and constructed of .125" polished aluminum treadplate. The compartment doors shall have a foam panel glued in place between the exterior and interior door skin. Exterior door panels shall be smooth with no welds visible on the exterior skin. Double door compartments shall be equipped with a secondary latch to hold the secondary door in position.

All compartment door hinges shall be full-length piano type constructed of a minimum 14-gauge type 304 polished stainless steel with 3/16" stainless steel hinge pin with dual directional boltholes for ease of adjustment.

When horizontally hinged lift-up doors are specified, they shall be equipped with heavy-duty gas filled props to hold the doors in the open position. All other hinged doors shall be equipped with spring loaded hold open device specifically designed for use on vertically hinged doors. Door holders shall be bolted in position. The door ajar switches shall be fully enclosed within structural members and shall not extend into the clear door opening.

All compartment doors shall be provided with hollow core weather stripping to provide a weather tight seal at the door opening and to prevent road spray and debris from entering the compartment.

One (1)

## **EXTERIOR DOOR LATCHES**

Side exterior compartment doors shall be furnished with a large stainless steel spring loaded D-handle with slam type latches. D-handles shall have the large "bent" D-ring for ease of grabbing the handle even when wearing mitts or gloves.

A non-moisture absorbing gasket shall be installed between the door latch and the door skin panel.

One (1)

## **DRIVER SIDE**

The driver side of the apparatus body shall consist of the following configuration.

One (1)

## **DRIVER SIDE COMPARTMENTS**

Five body compartments shall be furnished as follows:



- One compartment ahead of the rear wheels with double hinged doors.
- Three compartments above lower compartments with three lift-up doors.
- One compartment behind the rear wheels with single hinged door.

One (1)

### **PASSENGER SIDE COMPARTMENTS**

The passenger side of the apparatus body shall consist of the following compartment configuration.

One (1)

### **PASSENGER SIDE COMPARTMENTS**

Two lower body compartments shall be furnished as follows:

- One compartment ahead of the rear wheels with double hinged doors.
- One compartment behind the rear wheels with single hinged doors.

One (1)

### **REAR BODY CONFIGURATION**

Rear apparatus body compartments shall be as follows:

- There shall be one lower compartment with double hinged doors.
- There shall be one upper compartment with a lift-up type door.

One (1)

### **REAR BEAVER TAIL**

There shall be a beaver tail on the rear of the body. The beaver tail shall angle down from the top of the hose bed to the rear step area. Polished aluminum tread bright shall be installed on the inside of the beaver tail.

One (1)

### **ADJUSTABLE SHELVES**

Compartment shelves shall be constructed of .125" smooth Aluminum. Shelves shall have formed edges on three sides for added strength. Shelves shall be fully adjustable, with extruded aluminum unistrut channels provided on the front and rear compartment walls.

One (1)

### **SLIDE-OUT TRAY**

Slide-out trays shall be constructed of 3/16" aluminum material. Trays shall have with heavy-duty roller bearing slides with a latch to hold the tray in the "open" and "closed" positions. Tray shall have capacity of 250 pounds.

Eight (8)

### **SCBA BRACKETS**



SCBA mounting bracket(s) shall be provided and mounted in the enclosed storage compartments as per instructions of Fire Department.

One (1)

### **EXTRUDED ALUMINUM RUB RAILS**

Full body length polished aluminum rub rails shall be bolted in place on the right and left body sides and in the pump panel area. The rub rails shall extend outward beyond the body sides for protection of the compartments and doors. There shall be a bolt on aluminum corner casting on each rear corner to blend the rear tailboard assembly with the side rub rails.

The side rub rails shall be a heavy extruded aluminum "C" channel.

One (1)

### **SIDE AND REAR OVERLAYS**

Overlay panels shall be constructed of 3003 polished aluminum treadplate. Polished aluminum overlay shall be provided and installed in the following areas:

- The front face of each side compartment.
- The rear body face and vertical area above tailboard and below hosebed.
- Drivers side and passenger compartment top extending down over side to the compartment doors then forming a drip rail above doors.
- Front face of hose bed above booster tank.

Overlay shall be installed with "Aluminized" stainless steel bolts to prevent corrosion.

One (1)

### **SLIP-RESISTANT WALKWAY SURFACE**

All exterior surfaces designated as stepping, standing, and walking areas shall have an aluminum slip-resistant overlay material installed. The slip-resistant overlay material shall have a raised serrated surface that will allow moisture to drain out either side. The recessed surface shall be one piece solid material to prevent road spray and debris from entering the top surface from below. The slip-resistant overlay material shall meet the requirements of NFPA 13-7.3. The slip-resistant surface shall be installed in the following areas of the apparatus body:

- Step areas of the side running boards.
- Rear step running board step.
- Walkway and standing platforms

One (1)

### **REAR STEP/RUNNING BOARDS**

The apparatus body running boards and rear step shall be constructed with slip-resistant surface and shall have bright aluminum treadplate trim around the outside



edges. Side running boards and rear step shall be removable for ease of service in case of damage.

One (1)

### **REAR STEP/TAILBOARD**

A single piece .188 rear step/tailboard shall be furnished that is a minimum of 12.00" deep and full width of the apparatus body, from rub rail to rubrail. The tailboard shall be provided with a removable casting on each corner for a pleasing appearance.

One (1)

### **HANDRAILS**

Access handrails shall be 1 1/4" in diameter extruded aluminum with rubber insert. Access rail escutcheons and brackets shall be chrome plated and attached with stainless steel bolts. Anchoring of posts and framing members for railings of all types shall be of such construction that the completed railing structure shall be capable of withstanding a load of at least 225 pounds applied in any direction at any point along the rail.

One (1)

### **REAR HANDRAILS**

Two (2) vertical access handrails shall be provided and mounted on the rear of the apparatus body, one on each side. Each rear handrail to be approximately 48" long.

One (1)

### **HANDRAILS**

A full width access rail is to be provided and installed across the rear face of the apparatus body, below the hosebed level above the rear compartment doors.

One (1)

### **REAR FOLDING STEPS**

Six (6) NFPA approved folding steps shall be provided and mounted on the rear of the apparatus, three on each side. All access steps shall have a minimum surface area of 35-square inches, and have a slip-resistant standing surface. The step shall be capable of supporting a 500-lb. load.

One (1)

### **FRONT FOLDING STEPS**

Four (4) NFPA approved folding steps shall be provided and mounted on the front face of the apparatus body, three on the driver's side, one on the passenger's side. All access steps shall have a minimum surface area of 35-square inches, and have a slip-resistant standing surface. The step shall be capable of supporting a 500-lb. load.

One (1)

### **ELECTRICAL**

Electrical wiring, hydraulic lines, air system tubing, and control cables shall be fastened to the frame or body structure of the apparatus and shall be furnished with protective



looms, grommets, or other devices, so that any such connector and/or wiring will be protected from shear or tear.

The body 12-Volt electrical system shall be designed specifically for the apparatus body. Automatic reset circuit breakers shall be provided and installed in all circuits.

Wiring data shall be provided with the completed apparatus.

The following electrical equipment and lights shall be provided and installed:

One (1)

### **WIRING SYSTEM**

All electrical wiring shall be 14-gauge heavy strand copper with type GXL crosslink high temperature insulation, being circuit function printed every three-inches along its entire length.

Wiring data shall be provided with the completed apparatus.

The following electrical equipment and lights shall be provided and installed:

One (1)

### **TAIL & STOP LIGHTS**

Two (2) Weldon #2010 rectangular red stop/tail lights shall be provided and mounted at the rear of the body, one on each side.

One (1)

### **DIRECTIONAL LIGHTS WELDON 2010**

Two (2) Weldon #2010, rectangular amber directional signal lights with black arrows shall be provided and mounted at the rear of the body, one on each side below the stop/tail lights.

One (1)

### **BACKUP LIGHTS WELDON 2010 (RECT)**

Two (2) Weldon #2010, rectangular clear backup lights shall be provided and mounted, one on each side at the rear of the body. The backup lights shall be mounted below the rear stop/tail and directional lights.

One (1)

### **CLEARANCE LIGHTS**

There shall be clearance marker lights installed meeting all DOT requirements. The vehicle clearance lights shall be recess mounted within the rear center tailboard step.

One (1)

### **LICENSE PLATE BRACKET**

A license plate mounting bracket shall be provided complete with a chrome-plated shielded indirect type light. Bracket shall be mounted at the rear of the apparatus body.



One (1)

### **BACKUP ALARM**

An automatic, electronic reverse alarm shall be provided and installed. An alarm shall activate whenever the reverse gear is selected in the transmission.

One (1)

### **LOAD MANAGER**

The apparatus shall be equipped with a Kussmaul model 091-79 Automatic Load Shedding System for performing continuous electrical load management. The Load Manager shall have the following features:

- Monitor 12-volt system and detect low voltage.
- Capability to control two (2) loads.
- Automatic reset when voltage rises.
- Adjustable voltage setpoint.

The load manager shall be protected against reverse polarity and shorted outputs, and be enclosed in a metal enclosure to enhance EMI/RFI protection. CSFA shall provide for all electrical loads in excess of the NFPA minimum electrical requirements that exceed the alternator output.

Nine (9)

### **COMPARTMENT LIGHTING**

All side and rear exterior equipment compartments shall be provided with one (1) clear compartment light mounted to the top of the compartment ceiling. Compartment lights shall switch on automatically when the compartment door is opened and switch off when the door is closed.

One (1)

### **OPEN COMPARTMENT/HAZARD WARNING LIGHT**

A red flashing, warning light shall be provided and installed in the driver's compartment to indicate an open passenger or apparatus compartment door. The hazard light shall also be attached to folding equipment racks and light towers as specified. Light shall be properly marked and identified.

One (1)

### **BATTERY DISCONNECT SWITCH**

A master battery on/off switch shall be provided and mounted in a convenient location to the driver. The master battery switch shall disconnect the batteries from all chassis and body accessories.

One (1)

A "Battery-On" pilot light shall be provided, visible to the driver.

### **DASH MOUNTED EMERGENCY ELECTRICAL SWITCH PANEL**



An electrical switch panel shall be designed and mounted in the cab dash area. All switches shall be provided with backlighted snap-in legend inserts.

### **SWITCHES**

All emergency light switches shall be lighted, rocker style. Switches shall be internally lit when the switch circuit is in the on position. A plug-in identification label is to be provided and installed adjacent to each rocker switch with backlighting provided behind the label.

An internally lighted "master" switch shall be provided and wired through a heavy-duty relay to activate power to the emergency lights.

One (1)

### **REAR STEP LIGHTS**

Two (2) chrome plated lights shall be furnished and installed on the rear face of the body to illuminate the rear step area. Lights shall be wired to the panel light switch at the pump operator's panel.

One (1)

### **ENGINE COMPARTMENT WORK LIGHT**

An engine compartment work light shall be provided complete with a switch mounted on the light head.

One (1)

### **PUMP COMPARTMENT WORK LIGHT**

A pump compartment work light shall be provided and installed within the pump compartment area complete with a switch mounted on the light head.

One (1)

### **UNDER CAB LIGHTING**

There shall be two (2) lights furnished below the chassis cab, one on each side below each door. The lights shall be wired to switch on and off automatically when the cab doors are opened.

One (1)

### **UNDER BODY LIGHTING**

There shall be two (2) lights furnished below the pump house running board, one on each side. The lights shall be wired to turn on and off with a switch located on the driver's side pump panel.

One (1)

### **UNDER BODY LIGHTING REAR STEP**

There shall be two (2) lights furnished below the rear step, one on each side. The lights shall be wired to turn on and off with a switch located on the driver's side pump panel.



One (1)

### **REAR DECK LIGHTS**

Two (2) Unity #AG series, chrome-plated, six-inch rear mounted lights with swivel type mounting bracket and individual switches shall be provided.

One light shall be a **35-watt 75,000 candlepower spot** lamp, and one light shall be a **35-watt 1,100 candlepower flood** lamp.

One (1)

### **ELECTRONIC SIREN**

A Code 3 Model 3692 V-CON, 200-watt electronic siren with Hi-Lo and hardwired microphone shall be provided and mounted in the cab.

One (1)

### **SPEAKER**

Cast Products Model GS1004, 100-watt speaker shall be provided and recess mounted in the front bumper of the chassis. The speaker shall be connected to the electronic siren control unit.

One (1)

### **EMERGENCY LIGHTING**

The upper and lower zones "A", "B", "C", "D" of the apparatus shall have the following emergency lighting equipment:

One (1)

### **LIGHT BAR**

One (1) Code 3 model 556A3 56" mounted on chassis cab roof to meet the NFPA upper zone A lighting requirement. Light bar to have the following equipment.

- (4) 50-watt standard rotators
- (1) 50-watt fast rotator
- (2) diamond mirrors
- (2) 2-step cascade mirrors

One (1)

### **REAR LIGHTS**

Two (2) Code 3 model 550F rotating lights mounted on the rear of the apparatus body to meet the NFPA Zone B, C, D upper level lighting requirement. The lights shall be activated through the master emergency light switch located on the electrical console. Each light to have the following equipment.

- (1) 50-watt fast rotator
- 1 Red lens / 1 Amber lens

One (1)

### **UPPER ZONE "B, C, D" LIGHT MOUNTING**



The upper rear lights designated for Upper Zone "B" shall be mounted on cast aluminum stanchions attached to the apparatus body, one on each side.

One (1)

### **ZONE A FRONT LIGHTS**

There shall be two (2) Code 3 model 4135 halogen flashing lights furnished on the front grill to meet the NFPA Zone A lower level lighting requirement. The lights shall be connected to a relay be activated through the master emergency light switch located on the electrical console.

One (1)

### **ZONE B & D SIDE LIGHTS**

There shall be two (2) Code 3 model 4135 halogen flashing lights furnished on each side of the apparatus to meet the NFPA Zone B & D lower level lighting requirement. One light mounted as far forward as possible and one light mounted as far to the rear as possible. The halogen lights shall be connected to a flasher and be activated through the master emergency light switch located on the electrical console.

One (1)

### **ZONE C REAR LIGHTS**

There shall be two (2) Code 3 model 4135 halogen flashing lights furnished on the rear of the apparatus body to meet the NFPA Zone C lower level lighting requirement. The halogen lights shall be activated through the master emergency light switch located on the electrical console.

One (1)

### **12 VOLT ELECTRICAL CERTIFICATION**

The low voltage electrical system shall be tested and certified per NFPA 1901 requirements.

A certificate of compliance shall be provided with the completed vehicle upon delivery.

Minimum electrical load consists of the total amperage required to simultaneously operate the following in a stationary mode at the incident scene.

- The propulsion engine and transmission.
- All Clearance and marker lights.
- The communication radio. (Default of 5.0 amps used for testing).
- Illumination of all walking surfaces, the ground at all egress points, controls and instrument panels and 50% of the total compartment lighting load.
- Minimum warning lights required for "Blocking Right of Way" mode.
- The current to simultaneously operate any fire pump, aerial device & hydraulic pumps.
- Anything defined by the purchaser to be critical to the mission of the apparatus.



The first test for the electrical system is the **Reserve Capacity Test**. All the above listed components operate with the engine shut off. After 10 minutes all electrical loads are shut off and the battery system must have adequate reserve power to start the engine.

The second test is the **Alternator Performance Test at Idle**. All the above listed components operate with the engine at an idle. There can be no current draw from the batteries of the apparatus.

The third test is the **Alternator Performance Test at Full Load**. All electrical components shall be activated with the engine operating at governed RPM for two hours. During the test the system voltage can not drop below 11.7-volts or have excessive battery discharge for more than 120 seconds. Any loads not listed in the minimum electrical load may be load managed in order to pass the test.

All of the above tests must be conducted with the engine compartment at approximately 200 degrees.

One (1)

## **GENERATOR**

A Honda EM-5000SXX1, 5000-watt, 120/240-volt generator shall be provided. The unit shall have an air cooled 11HP gasoline engine equipped with low oil pressure shutdown. The unit shall be three wire, single phase 60-hz with full rated power available from a single 120-volt outlet. The oil drain, oil dip stick, fuel filter and oil filter for the generator must be easily accessible for maintenance.

An integral 4.5-gallon fuel tank, with electric and recoil starter shall be furnished with the generator.

Electric start provisions shall be furnished for the generator from the chassis battery system. Generator start/stop switches shall be provided at the generator.

One (1)

## **CIRCUIT BREAKER PANEL**

A circuit breaker panel shall be provided and mounted with two (2) manual reset circuit breakers properly labeled.

A portable generator shall be connected to the circuit breaker panel with S/O cord and quick disconnect plug. A permanent mount generator shall be hard wired to the circuit panel.

The circuit breaker panel shall be located in a compartment as close to the generator as practical, and mounted to not interfere with shelves or trays if specified. Circuit breaker



panel shall be mounted toward the bottom of the compartment just above the compartment floor. Breaker panel cover shall be accessible with hand tools.

One (1)

All AC wiring to be installed in liquid tight conduit.

One (1)

### **GENERATOR MOUNTING**

The generator shall be mounted in the right front lower compartment

Two (2)

### **TELESCOPING QUARTZ LIGHTING**

A quartz light shall be provided and mounted on the apparatus, wired to the 110-volt power source. The light shall be UL listed as "Scenelights for Fire Service Use". Light shall be controlled by a switch located on the light head.

Light shall be a Fire Research 500W/110V Nightmaster.

The light shall be attached to a side mounted, bottom raise telescoping, anodized aluminum pole. The telescoping pole shall have a four (4) foot extension with friction lock mechanism. The telescoping pole shall be prewired with heavy-duty retractile cord with pigtail extending out the bottom of the lower tube.

The telescoping pole shall be Fire Research model 530.

One (1)

### **PAINTING**

All bright metal fittings if unavailable in stainless steel shall be heavily chrome-plated. Iron fittings shall be copper plated prior to chrome plating.

All seams shall be caulked both inside and along the exterior edges with an automotive sealant to prevent moisture from entering between any body panels.

The body and all parts shall be thoroughly washed with grease cutting solvents prior to any sanding. After the body has been sanded and the minor imperfections filled and sanded, the body shall be washed again with a solution to remove any contaminants on the surface. The first coating to be applied is a self-etching primer for maximum adhesion to the body metal. The next three coats shall be an acrylic, urethane, primer surfacer. The primer surfacer coat is to be hand sanded with 600-grit sandpaper to insure maximum gloss of the paint. The last step is the application of at least three coats of Concept Acrylic Urethane two component color.

The fire pump and all rigid discharge and suction plumbing shall be painted silver in color.



While constructing the truck body, all aluminum parts shall be properly fitted on the body. The backside of all aluminum parts shall be sanded smooth of any burrs and sharp edges.

All aluminum parts shall be bolted to the body using stainless steel fasteners. Cadmium plated fasteners are not acceptable.

During reassembly of the apparatus, care shall be exercised in fitting and fastening the parts back in their respective position on the vehicle.

One (1)

### **UNDERCOATING**

The body subframe shall be undercoated with a heavy-duty automotive type undercoating before the rubber backing and the compartments are attached. After the body has been attached to the subframe and all final items have been installed the entire body assembly shall be undercoated

One (1)

### **INTERIOR COMPARTMENT PAINT**

The interior vertical compartment walls are to be painted white with a black colored spatter finish material.

One (1)

### **WHEEL PAINTING**

The exterior faces of the front and rear wheels, shall be finished painted to match the apparatus body. Wheels shall be properly prepared and finished with primer coats and topcoats as specified.

The outer two-inches of each outside wheel rim shall be painted Silver in color, unless otherwise specified.

One (1)

### **TWO TONE CAB PAINT**

The chassis cab exterior shall be two-tone finish painted. The area to be painted shall be sanded and thoroughly prepared then refinished with PPG Concept paint.

White over Lime Yellow

One (1)

### **LETTERING**

Lettering shall be done in gold leaf mylar letters, shaded in black, and encapsulated in clear mylar. Lettering to be placed on each cab door as directed by fire department. Maximum of fifty (50) letters.

One (1)

### **LETTERING SHALL BE AS FOLLOWS:**



One (1)

### **REFLECTIVE SAFETY STRIPE**

A 4" wide 3M brand Scotchlite #680-10 reflective stripe shall be affixed to the perimeter of the vehicle. Striping shall be placed up to 60" above ground level and shall conform to NFPA reflectivity requirements. At least 60% of the perimeter length of each side and width of the rear, and at least 40% of the perimeter width of the front of the vehicle shall have reflective stripe.

The side stripe shall be applied straight across the body.

The stripe shall be white in color.

One (1)

### **IDENTIFICATION & SAFETY LABELS**

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

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

When trucks have been UL certified, a permanent plate with pump performance data and serial numbers shall be installed on the pump panel.

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

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



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

If an inlet located at the pump operator's position is valved, it shall be provided with a permanent label that states "WARNING SERIOUS INJURY Or DEATH COULD OCCUR IF INLET IS SUPPLIED BY A PRESSURIZED SOURCE WHEN THE VALVE IS CLOSED".

One (1)

### **OPERATION/SERVICE MANUALS**

The following applicable documentation shall be supplied upon delivery:

- Two (2) copies of Operation/Service manual of the apparatus operations and service manuals supplied by components manufacturers.
- Pump certification including manufactures record of apparatus construction details.
- Certificate of compliance to Electrical Warning System Low Voltage test.
- Water tank capacity certificate.
- Line Voltage Electrical System test certificate.
- (NFPA 19-14.4.1 - 19.14.4.2)
- Certificate of approval for stationary pumping.

### **ADDITIONAL EQUIPMENT**

The following equipment shall be furnished by the apparatus body builder.

One (1)

A 24-foot, 2-section aluminum fire department extension ladder, ALCO-LITE Model PEL-24, shall be furnished.

One (1)

A 14-foot aluminum roof ladder with folding hooks, ALCO-LITE model PRL-14, shall be furnished.

One (1)

A 10-foot folding aluminum attic ladder, with mounting brackets, ALCO-LITE model FL-10, shall be furnished.

One (1)

6-foot pike pole with fiberglass handle and steel hook shall be furnished.

One (1)

8-foot pike pole with fiberglass handle and steel hook shall be furnished.

Two (2)

A 10-foot length of 6" lightweight PVC, flexible fire department suction hose, first quality non-collapsible type, of a design having a low friction loss and which will not collapse under a vacuum of 23".



Hard suction hose to be equipped with lightweight couplings. Long handles on female and rocker lugs on male couplings.

One (1)

A 6-pound flathead axe(s) with fiberglass handle shall be mounted as specified. Chrome-plated mounting shall be provided.

One (1)

A 6-pound pickhead axe(s) with fiberglass handle shall be mounted as specified. Chrome-plated mounting shall be provided. Rubber protector for pickhead axe shall be supplied.

***FOR MORE INFORMATION OR PICTURES OF THIS TRUCK PLEASE CALL:***

***ARTESIA FIRE EQUIPMENT***

***1-800-748-2076***

***505-746-2426***

***OR EMAIL US AT:***

**[MARSHALL@ARTESIAFIRE.COM](mailto:MARSHALL@ARTESIAFIRE.COM)**

**[RON@ARTESIAFIRE.COM](mailto:RON@ARTESIAFIRE.COM)**

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