

Central States Fire Apparatus

One (1)
BS-10-3200

CUSTOM CHASSIS.

A HME custom fire truck chassis shall be furnished with the following apparatus body and equipment.

CHASSIS ADDITIONS AND MODIFICATIONS

One (1)
CC-39-1500

FRONT BUMPER GRAVELSHIELD

There shall be a horizontal gravel shield fabricated from bright 1/8" aluminum treadplate installed at the front bumper to cover the area between the bumper and the cab.

Central States to modify the front bumper extension received from HME. Front extension not to exceed 12".

One (1)
CC-39-3100

CENTER HOSEWELL

A recessed style hosewell for storage is to be provided in the center of the front bumper extension. Hosewell shall be constructed of .125 #5052 aluminum treadplate material and have a smooth interior surface.

Hosewell shall have a drain hole in each corner.

One (1)
CC-50-0520

REAR MOUNT FUEL TANK

There shall be a rear-mounted fuel tank furnished with the chassis.

One (1)
CC-50-0530

CAST ALUMINUM FUEL FILL ASSEMBLY

There shall be a cast aluminum fuel fill assembly furnished in the driver's side behind rear axle for the rear mount fuel tank. The fuel fill assembly shall consist of a polished cast aluminum housing with fuel fill neck and cap.

One (1)
CC-50-3500

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.

The chassis air inlet shall be located near the driver's step area.

One (1)

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CC-50-5500

FRONT MUD FLAPS

Heavy-duty, black 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)

CC-50-6000

REAR MUD FLAPS

Heavy-duty, black 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)

CC-51-1100

HORIZONTAL CHASSIS EXHAUST

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

One (1)

CC-65-0400

ALTERNATOR

The alternator shall be of adequate size to meet the NFPA requirements and to accommodate the specific apparatus electrical load.

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PUMP AND PLUMBING

One (1)
DD-00-0490

WATEROUS CX-1250 GPM SINGLE STAGE FIRE PUMP

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

One (1)
DD-01-4000

SINGLE STAGE MIDSHIP MOUNTED FIRE PUMP

A Waterous Model CXY 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.

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 pump casing shall be a three-piece, vertically split design, high strength gray iron.

The impeller shaft shall be stainless steel, heat treated, and precisely machined and ground to size. All bearings are to be oil or grease lubricated, ball-type, located outside the pump casing in the pump transmission, to accurately align and support the impeller shaft assembly and input shaft. Ball bearings are to be deep groove type, designed to carry both radial and axial loads. A face-type, self-adjusting, corrosion and wear resistant mechanical seal is to be provided.

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 operator's 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.

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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)
DD-04-0070

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)
DD-04-0100

MANUAL CONTROL PRIMING PUMP

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

One (1)
DD-04-0500

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 operator's 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)

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DD-04-5000

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)

DD-04-7000

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 fire ground operational requirement of these specifications.

One (1)

DD-04-7500

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)

DD-99-0500

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)

DH-20-1000

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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)
DH-20-2000

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)
DH-20-4000

HEAT EXCHANGER DISCHARGE

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

One (1)
EE-01-2000

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)
EE-01-3010

AUXILIARY PUMP AND ROLL

The power to drive the system shall be provided by a Lombardini PLD-560-2, 2 cylinder, four cycle, air-cooled diesel engine, oil filter, dry type air cleaner, muffler, manual compression releases, 12 volt starter, alternator and fuel pump.

The water pump shall be a Darley model 1-1/2 AGE 21LD single-stage, centrifugal pump with a vertically split aluminum case and bronze impeller on a stainless steel shaft. Performance shall be as follows:

180 GPM (681 l/m) @ 120 PSI (8.3 bar)
120 GPM (454 l/m) @ 195 PSI (14.6 bar)
60 GPM (227 l/m) @ 235 PSI (16.2 bar)

The pump seal shall be of a mechanical design. Helical cut gears shall be utilized in the pump transmission.

Pump plumbing shall have check valves to prevent the backflow of water between the two water pumps. The auxiliary pump shall be located above the main fire pump in the dunnage area on the passenger' s side.

An additional priming control valve shall be provided for priming the auxiliary pump with the specified priming pump.

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Dual controls including ignition, engine start/stop, and throttle for the auxiliary pump shall be provided both on the pump panel and in the cab. Cab controls are in addition to the 2-1/2" pressure gauge and tank level gauge located in the cab and which are specified separately within these specifications.

The auxiliary pump shall be plumbed in common with the midship water pump to both crosslays and both booster reels.

One (1)
EE-01-4070

FUEL SYSTEM

The fuel system for the auxiliary pump shall be plumbed to the chassis fuel system. There shall be a separate fuel pickup tube mounted in the chassis fuel tank specifically for a separate engine driven pump assembly. There shall be an electric fuel pump with regulator and fuel hose furnished between the chassis fuel tank and the carburetor assembly for the auxiliary pump.

One (1)
EE-01-4200

ENGINE THROTTLE

A vernier engine control throttle for manually operated engines shall be furnished on the pump operator's control panel. There shall be an engraved identification label provided to read **THROTTLE**.

One (1)
EE-02-1000

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)
EE-02-5150

STAINLESS STEEL INTAKE MANIFOLD

The suction manifold assembly shall be fabricated with schedule 10 type 304 stainless steel. All threaded fittings shall be a minimum of schedule 40 stainless steel. The suction manifold assembly shall have radiused sweep elbows to minimize water turbulence into the suction volute. The suction manifold shall be welded and pressure tested prior to installation. The stainless steel manifold assembly shall be attached to the pump intake volute with a heavy-duty, flexible victaulic coupling.

The stainless steel manifold assembly shall have a ten (10) year warranty.

One (1)
EE-02-5600

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.

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

One (1)
EE-02-5700

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.

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

One (1)
EE-20-0500

SUCTION CAP DRIVER'S SIDE

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

One (1)
EE-20-1000

SUCTION CAP PASSENGER SIDE

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

One (1)
EE-20-2200

REAR SUCTION CAP

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

One (1)
ES-02-1500

2-1/2" GATED SUCTION INTAKE DRIVER SIDE

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.

One (1)
ES-02-1510

SUCTION VALVE CONTROL

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

One (1)
FA-00-1050

STAINLESS STEEL DISCHARGE MANIFOLD

The discharge manifold shall be fabricated with schedule 10 type 304 stainless steel. All threaded fittings shall be a minimum of schedule 40 stainless steel. The discharge manifold shall be fabricated, welded, all fittings attached and pressure tested prior to installation. The stainless steel discharge manifold assembly shall be bolted to the pump and have stabilizer arms attached to reinforce the discharge manifold.

The stainless steel discharge manifold assembly shall have a ten (10) year warranty.

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One (1)
FA-01-0000

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)
FA-01-0020

STAINLESS STEEL PLUMBING

All rigid piping three-inch diameter or less shall be **STAINLESS STEEL** type with tapered thread or victaulic type couplings.

Two (2)
FA-01-0500

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) 2-1/2" discharges shall be provided on the driver's side pump panel.

Two (2)
FA-01-0501

MANUAL VALVE

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

Two (2)
FA-01-1000

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) 2-1/2" discharges shall be provided on the driver's side pump panel.

Two (2)
FA-01-1001

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MANUAL VALVE

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

One (1)
FA-01-1500

DRIVER SIDE REAR DISCHARGE OUTLET

There shall be one (1) 2-1/2" discharge outlet located on the driver's side rear of the body below the hosebed. 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)
FA-01-1501

MANUAL VALVE

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

Five (5)
FA-01-3220

2-1/2" CAPS AND CHAINS

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

All 2-1/2" discharges shall have chrome plated caps and chains.

One (1)
FB-02-1000

1-1/2" FRONT DISCHARGE

One and one half (1-1/2") discharge located at front bumper. Front discharge shall be plumbed using two-inch (2") pipe and wire reinforced high-pressure hose coupled with stainless steel fittings. Front discharge outlet shall have two-inch quarter turn swing out valve with control on pump operator's panel. The front discharge shall be provided with a 1-1/2" brass 90-degree swivel adapter with 1-1/2" NST male outlet.

One (1)
FB-02-1001

MANUAL VALVE

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

One (1)
FB-02-1010

MANUAL DRAIN VALVE

Front discharge outlet shall have a 3/4" drain with individual control on side pump panel. There shall be additional automatic drains furnished as required to drain the plumbing system between the pump and the front discharge connection.

One (1)
FB-02-1215

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FRONT DISCHARGE HOSE CONNECTION

The hose connection for the front discharge outlet shall be located on top of the front bumper extension. The hose connection shall have a continuous swivel adapter located on top of the front bumper extension.

Two (2)
FC-31-0100

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.

Two (2) 1-3/4" crosslays shall be provided.

Two (2)
FC-31-0101

MANUAL VALVE

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

Two (2)
FC-31-0108

MANUAL DRAIN VALVE

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

One (1)
FC-31-4200

CROSSLAY HOSEBED COVER

A .125 polished aluminum treadplate hinged cover shall be provided over the crosslay hosebed(s) complete with full length stainless steel piano hinge and with chrome plated lift handles provided on each side of the cover. Stops shall be provided to hold the cover in the open position or to protect cab or other adjacent body components. The hinge shall be located on the forward section of the cover, closest to the chassis cab.

One (1)
FC-31-6200

BOOSTER HOSE REEL

There shall be a Hannay booster hose reel with leak proof ball bearing swing joint, adjustable friction brake and electric rewind furnished. The reel shall be plumbed with wire reinforced; high-pressure hose coupled with brass fittings, and have one-inch (1") swing out, ball valve with control on pump operator's panel.

Booster hose reel is to be mounted above the fire pump.

One (1)
FC-31-6201

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MANUAL VALVE

Discharge valve shall have manual control handle located on pump operator's panel.

One (1)
FC-31-6807

BOOSTER REEL PLUMBED TO NORMAL PRESSURE SIDE OF PUMP

The booster reel shall be plumbed to the normal pressure side of the pump using flexible hose.

One (1)
FC-31-6809

PAINTED BOOSTER REEL

Each booster reel shall have a steel frame and drum assembly with side discs. The frame, drum, drive chain, sprocket, hub assembly swivel joint and fasteners shall be painted silver. The booster reel assembly shall be Hannay model F.

Two (2)
FC-31-7200

ROLLER ASSEMBLY FOR BOOSTER REEL

The booster hose reel shall be equipped with a heavy-duty, stainless steel roller assembly.

Two (2) roller assemblies shall be provided, one on each side of the body.

Two (2)
FC-31-8200

BOOSTER HOSE

One hundred (100) foot length of 1-inch rubber covered booster hose, high-pressure type at least 800 lbs test, coupled and installed on the specified booster hose reel.

Two (2) 100 ft. lengths of 1" booster hose shall be provided.

One (1)
FF-26-1000

FOAM SYSTEM

A Foam Pro Model #1600 built in foam injection system shall be provided with the controls at the operator's panel.

The foam system shall be a fully automatic, electronic, direct injection foam proportioning system. The system shall be capable of Class A foam concentrate. The foam proportioning operation shall be based on an accurate direct measurement of water flows with no water flow restriction. The foam system shall be installed in accordance with the manufacturer's recommendations.

The system shall be equipped with a control module. It shall be installed on the pump operator's panel and enable the pump operator to perform the following functions;

1. Activate the foam system
2. Change foam concentrate proportioning rates of .1% to 1%.
3. Flash a "low concentrate" warning light when the foam concentrate tank runs low of concentrate and in two minutes if foam concentrate is not added to tank, shut the foam concentrate pump down.

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The foam system shall have a 12-volt, 1/3-hp electric motor driven positive displacement piston type foam concentrate pump with a rated capacity of .01 to 1.6 gpm with operating pressures up to 400 psi.

The FoamPro system shall be plumbed to the following discharge outlet.

The foam system shall be plumbed to the two 1-3/4" crosslays and the booster reel.

One (1)
FF-27-0100

SINGLE FOAM TANK PLUMBING SYSTEM

The foam tank shall be plumbed with three-quarter inch (3/4") valve and corrosion resistant hose from the foam tank to the foam inlet. There shall be a three-quarter inch (3/4") drain line furnished on the foam tank. Drain valve to be located on foam tank with corrosion resistant hose piped to below the frame level of the chassis.

One (1)
FF-27-2000

FOAM TANK

A 20-gallon foam concentrate tank shall be furnished as an integral component of the booster tank. The foam tank shall have a separate fill tower provided in a location to allow easy access for filling. Fill tower shall be equipped with a pressure/vacuum vent and have a sealed airtight cover. Tank shall be plumbed to the on board "Class A" foam system. A valved drain shall be provided at the lowest point of the foam tank. The drain shall be plumbed to drain directly to the surface below the apparatus without contacting other body or chassis components.

The following labels shall be attached to the foam tank:

"CLASS A FOAM TANK FILL"

"WARNING: DO NOT MIX BRANDS AND TYPES OF FOAM"

One (1)
FH-03-0100

TANK TO PUMP PLUMBING

A 3" *Akron* ball type gated suction valve shall be furnished from the tank to the pump, complete with a flexible connection and enclosed in the pump compartment.

A check valve shall be provided and installed in the line between the tank and the pump to prevent the possibility of backfilling the booster tank through the tank to pump suction line.

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

One (1)
FH-03-2000

BALL VALVE TANK TO PUMP

A 2-1/2" gated suction shall be provided between the booster tank and the portable pump.

One (1)
FH-03-6000

TANK FILL/COOLING LINE

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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 one and one-half inch, (1-1/2") swing out type ball valve and be plumbed to tank with flexible type hose.

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One (1)
FJ-00-0200

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)
FJ-01-0208

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)
FJ-01-2000

BOOSTER TANK

A 750-gallon capacity polypropylene booster tank shall be provided.

One (1)
FJ-02-7610

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.

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One (1)
FK-01-0500

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, 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)
FK-01-1600

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 overlaid with polished aluminum treadplate.

One (1)
FK-01-2100

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)
FK-01-2300

PUMP PANELS

The right and left side pump panels shall be constructed entirely of aluminum, and be coated with black thermo-plastic material. The panels are to be completely "bolted" in place for ease of removal.

One (1)
FK-01-3000

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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)
FK-10-0000

PUMP OPERATORS PANEL

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

One (1)
FK-10-1100

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)
FK-10-2700

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.

Three (3)
FK-10-2900

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

Five (5)
FK-10-3000

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

One (1)
FK-10-3300

There shall be one (1) pressure gauge for each booster hose reel.

One (1)
FK-11-3700

ENGINE THROTTLE

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An electronic vernier engine control throttle shall be provided on the pump operator's control panel for the Cummins 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)
FK-12-1100

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)
FK-12-5200

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)
FK-12-7100

PUMP PANEL WATER TANK LEVEL GAUGE

A Class One ITF Intelli-tank water tank level gauge shall be provided on the pump operator's panel. The Intelli-tank display features wide-angle viewing and four (4) ultra-bright LED's for high visibility, even in direct sunlight. The Intelli-tank utilizes a pressure transducer, ILO of probes, to provide nine (9) accurate levels of indication.

One (1)
FK-12-9200

PUMP PANEL FOAM TANK LEVEL GAUGE

A Class One ITF Intelli-tank foam tank level gauge shall be provided on the pump operator's panel. The Intelli-tank display features wide angle viewing and ultra-bright LED's for high visibility, even in direct sunlight. The Intelli-tank utilizes a pressure transducer, ILO of probes, to provide nine (9) accurate levels of indication.

One (1)
FK-13-1500

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.

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APPARATUS BODY SPECIFICATIONS

One (1)
HA-00-0200

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)
HA-00-0320

HOSEBED CAPACITY

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

The hose bed will accommodate a minimum of 1200' of 3" hose and 400' of 1-3/4" hose or more if possible.

Exact hose bed requirements shall be determined prior to construction.

One (1)
HA-00-0400

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.

Three (3)
HA-00-1600

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.

Three (3) hosebed dividers shall be provided.

One (1)
HA-01-0800

HINGED ALUMINUM HOSEBED COVERS

Polished aluminum treadplate hosebed covers shall be furnished, extending the full-length and width of the main hosebed.

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Covers shall be fabricated of 3/16" polished aluminum treadplate with cross bracing for maximum strength, and to support the weight of a firefighter standing on the covers when closed. The covers shall be of the sloped design for proper water runoff. Each cover to be equipped with a full-length stainless steel piano hinge with chrome plated grab handles at front and rear of each cover. Hosebed covers shall include heavy-duty stops to support them when in the opened position.

One (1)
HD-00-0700

LADDER STORAGE

An open ladder storage area shall be provided within the main hosebed area. Compartment shall be provided with individual scratch resistant racks for each ladder. Racks shall be designed so that any ladder or tool may be removed without disturbing the other equipment.

One (1)
HD-00-1200

LADDER MOUNTINGS

The ladders shall be mounted in the passenger side compartments on individual poly scratch resistant slides. There shall be an aluminum treadplate door on the rear with push button latch for access to the interior of the compartment.

One (1)
HD-00-2510

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)
HD-00-5100

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)
HD-00-7015

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)
HD-01-0500

PIKE POLE(S) MOUNTED IN LADDER COMPARTMENT

There shall be room for the pike pole(s) to be mounted in the compartment, along with the specified ladders.

One (1)
HD-01-7015

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.

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One (1)
KB-02-1000

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)
KB-10-3000

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)
KK-01-1100

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.

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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)
KK-02-0400

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)
KK-02-0500

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 repairability requirement of these specifications.

One (1)
KK-02-0654

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)
KK-02-3700

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)

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KK-03-0050

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)
KK-03-0065

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 bolt holes 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)
KK-03-0076

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)

Central States Fire Apparatus

KK-03-0099

DRIVER SIDE

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

One (1)

KK-03-2300

DRIVER SIDE COMPARTMENTS

Three body compartments shall be furnished as follows:

- One compartment ahead of the rear wheels with full height hinged door.
- One compartment above rear wheel with one lift-up door.
- One compartment behind the rear wheels with full height single hinged door.

One (1)

KK-04-0100

PASSENGER SIDE COMPARTMENTS

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

One (1)

KK-04-2300

PASSENGER SIDE COMPARTMENTS

Three body compartments shall be furnished as follows:

- One compartment ahead of the rear wheels with full height hinged door.
- One compartment above rear wheel with one lift-up door.
- One compartment behind the rear wheels with full height single hinged door.

One (1)

KK-50-0570

REAR BODY CONFIGURATION

Rear apparatus body compartments shall be as follows:

- There shall be one lower compartment with double-hinged doors.

One (1)

KK-50-4200

FLAT BACK BODY

The rear vertical surface of the body shall be flat from side to side.

Six (6)

KM-49-1604

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.

Six (6) shelves shall be provided. Locations shall be determined prior to construction.

Five (5)

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KM-49-1615

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 500 pounds.

One (1) tray shall be located in the passenger's side rear compartment for the generator. The locations of the other four (4) trays shall be determined prior to construction.

Two (2)
KM-50-0100

DRIVER SIDE AIR BOTTLE COMPARTMENTS IN WHEELWELL

SCBA storage compartment shall be provided and located in the driver side rear wheelwell of the apparatus body. Compartment door and frame shall be constructed entirely of cast aluminum and have hinged style door. The compartment bottom and rear wall shall be lined with rubber material to protect paint finish of the air cylinder.

Two (2) SCBA storage compartments shall be located on the driver's side of the body.

Two (2)
KM-50-0250

PASSENGER SIDE AIR BOTTLE COMPARTMENTS IN WHEELWELL

SCBA storage compartment shall be provided and located in the passenger side rear wheelwell of the apparatus body. Compartment door and frame shall be constructed entirely of cast aluminum and have hinged style door. The compartment bottom and rear wall shall be lined with rubber material to protect paint finish of the air cylinder.

Two (2) SCBA storage compartments shall be located on the passenger's side of the body.

One (1)
KR-01-0100

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)
KR-04-0002

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.

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One (1)
KR-04-0010

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

POLISHED COMPARTMENT TOP WELDS

One (1)
KR-04-3000

The compartment top welds to be polished.

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)
KR-04-4902

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)
KR-04-4908

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)
KR-10-0000

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)
KR-10-0100

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)

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KS-01-0400

REAR FOLDING STEPS

Two (2) NFPA approved folding steps shall be provided and mounted on the rear of the apparatus, one 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)

KS-01-2600

FULL WIDTH INTERMEDIATE STEP

There shall be a full width intermediate step furnished and installed on the rear of the apparatus body. The top surface to the intermediate step shall have a slip-resistant surface meeting NFPA requirements. The intermediate step shall be fabricated of polished aluminum treadplate material and be bolted to the rear of the apparatus body.

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One (1)
NA-00-0010

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)
NA-00-0080

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)
NA-00-1000

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)
NA-00-2500

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)
NA-00-4000

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)
NA-00-5300

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.

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One (1)
NA-00-5400

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)
NA-00-5600

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)
NA-00-6100

LOAD MANAGER

The apparatus shall be equipped with a Class 1 Total System Manager (TSM) for performing electrical load management. The TSM shall be supplied with the custom chassis.

Seven (7)
NA-01-1000

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)
NA-01-3000

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)
NB-02-5200

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.

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

One (1)
NB-02-6000

BATTERY CONDITIONER

A 110-volt Kussmaul Auto-Charge 12, single system, 12-amp automatic battery charger shall be provided and installed within the chassis cab and wired to the battery system. Battery charger shall be designed to automatically charge the battery system when shoreline power is connected. The charger shall be equipped with an amp meter on the face of the charger to indicate the charge rate, and a remote voltage sensing device to compensate the charger output for the voltage drop in the charging wires.

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One (1)
NB-02-7620

AUTO-EJECT

A Kussmaul "Super Auto-Eject" 20-amp automatic disconnect device shall be provided and installed on the 110 volt shoreline connection complete with weatherproof cover and matching plug. The Auto-Eject shall be activated by the chassis starter switch to disconnect the plug. The Super Auto-Eject shall be completely sealed to prevent contamination of the mechanism by inclement weather and road conditions. The Super Auto-Eject shall have an internal switch to open and close the A.C. circuit after the mating connector is inserted and before the connector is removed.

One (1)
NB-02-9500

DASH MOUNTED EMERGENCY ELECTRICAL SWITCH PANEL

An electrical switch panel shall be designed and mounted in the cab dash area as furnished by the custom chassis manufacturer. 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 switch shall be provided and wired through a heavy-duty relay to activate power to the emergency lights. The emergency lights shall be activated by a single "MASTER SWITCH" on the electrical console.

One (1)
NB-10-5000

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)
NB-10-5400

ENGINE COMPARTMENT WORK LIGHT

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

One (1)
NB-10-5600

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)
NB-10-6200

UNDER CAB LIGHTING

The under cab lights shall be supplied with the chassis.

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One (1)
NB-10-6800

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)
NB-10-6900

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)
NB-30-0200

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)
NC-02-9010

AIR HORNS

Two (2) chrome-plated Grover "Stuttertone" air horns shall be provided and recess mounted in the front bumper extension. A pressure protection valve to prevent the use of air horns or other air operated accessories when the system air pressure drops below 80 psi shall be provided.

Air horns shall be controlled from the following switch positions.

One (1)
NC-02-9028

One (1) foot switch shall be provided on the passenger's side floor for activation of the air horn.

One (1)
NC-02-9040

HORN SELECTOR SWITCH

An air horn/horn selector switch shall be provided and mounted on the switch console to select activation of the chassis horn, or the air horns.

One (1)
NC-03-2000

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)
NC-03-5000

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.

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One (1)
NC-04-2900

RED LIGHT

There shall be a steady burning red light furnished on the chassis cab.

Light shall be provided for California DMV requirements.

One (1)
NE-04-0950

EMERGENCY LIGHTING

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

One (1)
NE-04-5900

LIGHT BAR

One (1) Code 3 model 574NFPA1 74" 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
- (4) 2 step cascade mirrors
- (2) 3 step cascade mirrors

One (1)
NE-05-0100

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)
NE-05-1220

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)
NE-05-2150

ZONE A FRONT LIGHTS

The lower front zone "A" lights shall be furnished with the chassis.

One (1)
NE-05-4610

ZONE B & D SIDE LIGHTS

There shall be two (2) Code 3 model 4135BZ halogen flashing lights with bezels 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

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be connected to a flasher and be activated through the master emergency light switch located on the electrical console.

One (1)
NE-05-8600

ZONE C REAR LIGHTS

There shall be two (2) Code 3 model 4135BZ halogen flashing lights with bezels 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)
NS-00-0100

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 cannot 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)
OA-35-0003

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

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outlet. The oil drain, oil dipstick, 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)
OA-35-0104

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)
OA-35-0120

All AC wiring to be installed in liquid tight conduit.

One (1)
OA-35-0130

GENERATOR MOUNTING

The generator shall be mounted in the right rear lower compartment

One (1)
OA-35-0165

12-VOLT POWER CONNECTION

12-volt power from the chassis batteries shall be provided for the portable generator electric start. Power cable shall be heavy-duty battery cable with a quick disconnect receptacle provided in the area of the generator mounting location, complete with a matching male plug for connection to the generator.

Two (2)
OA-35-0700

REAR BODY 110-VOLT RECEPTACLES

All 110-volt receptacles shall be provided with weatherproof covers. Receptacle shall be mounted on the rear area of the apparatus body.

Two (2) receptacles shall be provided at the rear of the body, one on each side.

Two (2)
OA-42-0010

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.

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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.

Two (2) telescoping lights shall be provided and mounted on the back wall of the cab, one each side.

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One (1)
PA-01-0002

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)
PA-01-0200

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)
PA-01-1515

INTERIOR COMPARTMENT PAINT

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

One (1)
PA-01-3500

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)

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PA-01-4500

PAINT BODY TO MATCH CHASSIS

The apparatus body to be painted to match the chassis.

The color shall be red. The exact color shall be provided to the manufacturer prior to construction.

One (1)

PA-02-1910

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)

PA-02-2600

Lettering requirements shall be determined prior to construction.

One (1)

PA-02-5300

REFLECTIVE SAFETY STRIPE

A 6" 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 in a Large "Z" design.

The stripe shall be white in color.

One (1)

PC-00-0100

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.

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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)
TA-01-0100

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.

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One (1)
VA-00-0000

ADDITIONAL EQUIPMENT

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

LADDERS

One (1)
VA-01-0400

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

One (1)
VA-01-0425

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

One (1)
VA-01-0435

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

PIKE POLE

One (1)
VA-02-6000

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

Two (2)
VA-03-6000

HARD SUCTION HOSE

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.

Two (2) 10' lengths of 6" hard suction hose shall be provided.

One (1)
VA-04-3100

SUCTION STRAINER

A 6" NST chrome-plated barrel type suction hose strainer shall be provided.

WHEEL CHOCKS

One (1)
VA-05-6800

A pair of heavy-duty aluminum wheel chocks shall be provided and mounted in underbody slide-out mounting brackets as directed by the fire department.

One (1)
VA-05-9300

MISCELLANEOUS HARDWARE

There shall be a bag of miscellaneous hardware included with the apparatus. This bag shall contain nuts and bolts that are commonly used on the apparatus.

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One (1)
1B-00-0500

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 affect 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.

One (1)
1B-00-2000

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

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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.

One (1)
1B-00-3500

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.