

Veyo Fire Department, Utah

One (1)
BS-10-3600

CAB AND CHASSIS SPECIFICATIONS

APPLICATION:	2004 International 7400 SBA 4x4
MISSION:	Requested GVWR: 35000. Calc. GVWR: 35000 Calc. Strt/Grade Ability: 46% / 3.51% @ 55 MPH Calc. Geared Speed: 66 MPH
FUEL ECONOMY:	8.08 MPG @ 55 MPH
DIMENSION:	Wheelbase: 257", CA: 146", Usable CA: 146"
ENGINE, DIESEL:	(International DT530 Standard Torque) Electro-Hydraulic Fuel System, 50 State, 330 HP @ 2000/2200 RPM, 950 lb-ft. Torque @ 1200 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max) Includes #2 Bell Housing
TRANSMISSION, AUTOMATIC:	Allison 3500EVS_P) Wide Ratio, 5-Speed; Includes Oil Level Sensor, With Provision for PTO, Less Retarder
CLUTCH:	Omit Item (Clutch & Control)
AXLE, FRONT DRIVING TYPE:	(Meritor MX-12-120) Single Reduction, 12,000-lb. Capacity
AXLE, REAR, SINGLE:	(Meritor RS-23-160) Single Reduction 23,000-lb Capacity with 200 Wheel Ends Gear Ratio: 5.38
CAB:	Conventional Steel; 6-Man Crew Cab
TIRE, FRONT:	(2) 11R22.5 G328 (GOODYEAR) 499 rev/mile, load range G, 14 ply
TIRE, REAR:	(4) 11R22.5 G328 (GOODYEAR) 499 rev/mile, load range H, 16 ply
SUPENSION, RR SPRING, SINGLE:	Vari-Rate; 31,000-lb Capacity, includes 4500-lb. Multileaf Auxiliary

Description

Base Chassis, Model 7400 SFA 4X4 with 257" Wheelbase, 146" CA, 146" Usable CA

TOW HOOK FRONT (2) Frame Mounted.

FRAME RAILS Heat Treated Alloy Steel (120,000 PSI Yield); 10.866" x 3.622" x 0.433" (276.0mm x 92.0mm x 11.1mm); 456.0" (11582mm) Maximum OAL

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

AXLE, FRONT DRIVING TYPE (Meritor MX-12-120) Single Reduction 12,000-lb Capacity

Includes

: DRAIN PLUG, DRIVING FRONT AXLE Magnetic

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AXLE, FRONT DRIVING, LUBE (EmGard 75W-90) Synthetic Oil; 1 thru 29.99 Pints

SUSPENSION, FRONT, SPRING Parabolic, Taper Leaf; 12,000-lb Capacity; With Shock Absorbers

Includes

:SPRING PINS Rubber Bushings, Maintenance-Free

BRAKE SYSTEM, AIR Dual System for Straight Truck Applications

Includes

:AIR COMPRESSOR AIR SUPPLY LINE Through Air Cleaner

:BRAKE CHAMBERS, SPRING (2) Rear Parking

:BRAKE LINES Color Coded Nylon

:DUST SHIELDS, REAR BRAKE

:DUST SHIELDS, FRONT BRAKE

:SLACK ADJUSTERS, FRONT Automatic

:SLACK ADJUSTERS, REAR Automatic

:PARKING BRAKE VALVE Color-Coded Yellow Knob, Located on Instrument Panel

:DRAIN VALVE Twist-Type

:SPRING BRAKE MODULATOR VALVE

:GAUGE, AIR PRESSURE Located in Instrument Cluster Air 1 and Air 2 Gauges;

DRAIN VALVE, AUTOMATIC {Bendix DV-2} With Heater, for Air Tank

AIR BRAKE ABS {Bendix AntiLock Brake System} Full Vehicle Wheel Control System (4-channel) with Automatic Traction Control

AIR DRYER {Meritor-Wabco System Saver I200} Mounted in Standard Location

BRAKES, FRONT, AIR CAM S-Cam; 16.5" x 5.0", Includes 20 Sq. In. MGM Long Stroke Brake Chambers

BRAKES, REAR, AIR CAM 16.5" x 7.0", Includes MGM TR3030 Long Stroke Brake Chamber and Heavy duty Spring Actuated Parking Brake

AIR COMPRESSOR {Bendix Tu-Flo 750} 16.5 CFM

STEERING COLUMN Tilting

STEERING WHEEL 2-Spoke, 18" Diam, Black

STEERING GEAR {Sheppard M-100} Power

EXHAUST SYSTEM Single, Horizontal Muffler and Short Tail Pipe, Aluminized Steel; Frame Mounted Right Side

ENGINE EXHAUST BRAKE (PacBrake) for International I-6 Engines

ELECTRICAL SYSTEM 12-Volt, Standard Equipment

Includes

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

:TURN SIGNAL SWITCH Self-Canceling, Headlight Dimmer (with Flash-To-

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Pass Feature)
:HEADLIGHTS (2) Sealed Beam Halogen, 5" X 7" Rectangular, with Chrome Plated Bezels
:HORN, ELECTRIC Single
:PARKING LIGHT Integral with Front Turn Signal and Rear Tail Light
:STOP, TURN, TAIL & B/U LIGHTS Dual, Rear, Combination with Reflector
:STARTER SWITCH Electric Key Operated
:RUNNING LIGHT (2) Daytime
:TURN SIGNALS, FRONT Flush Mounted Include Reflectors and Auxiliary Side Turn signals, Solid State Flashers;
:DATA LINK CONNECTOR In Cab For Vehicle Programming and Diagnostics
:WINDSHIELD WIPERS Single Motor, Electric, Cowl Mounted
:WINDSHIELD WIPER SWITCH 2-Speed Integral with Turn Signal Switch with Wash and Intermittent Feature,
:WIRING, CHASSIS Color-coded and Continuously Numbered

CIGAR LIGHTER

HORN, ELECTRIC (2)

IGNITION SWITCH Keyless

ALTERNATOR (Leece-Neville 4867JB) Brush Type;12 Volt 270 Amp. Capacity with Self Excite, Includes a 1-Gauge Charging Circuit

Battery System (3) (International) Maintenance-Free 12-Volt 1950 CCA Total

JUMP START STUD Remote Mounted.

HORN, AIR {Grover} Black, Single Trumpet, Air Solenoid Operated, Mounted Behind Bumper on Right Side

BATTERY DISCONNECT SWITCH {Joseph Pollack 51-315} Positive Type, Lever Operated, Mounted on Cab Floor

ALTERNATOR PULLEY 2.4" Diameter for Increased Alternator Output at idle; for Fire Truck Must Include: Fire Truck Identity Code

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

HEADLIGHTS Long Life Halogen: for Two Light System

Includes

:RUNNING LIGHT (2) Daytime

COURTESY LIGHT (4) Two Front Mounted Under Instrument Panel and Two for Rear Doors, (One Each Side)

STARTING MOTOR {Leece-Neville MS2} 12-Volt; less Thermal Over-Crank Protection

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

FENDER EXTENSIONS Injection Molded TPO

GRILLE Stationary

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FRONT END Tilting, Fiberglass, With Three Piece Construction

PAINT SCHEMATIC, PT-1 Single Color, Design 100

Includes

:PAINT SCHEMATIC ID LETTERS "GM"

PAINT TYPE Base Coat/Clear Coat, 1-2 Tone

PAINT CLASS Single Custom Color.

KEYS,-ALL ALIKE, ID Z-001

CLUTCH Omit Item (Clutch & Control)

BLOCK HEATER, ENGINE (Phillips) 120 Volt/1250 Watt

Includes

:BLOCK HEATER SOCKET Receptacle Type; Mounted below Drivers Door

ENGINE, DIESEL {International DT530 Standard Torque} Electro-Hydraulic Fuel System, 50 State, 330 HP @ 2000/2200 RPM, 950 lb-ft Torque @ 1200 RPM, 2200 RPM Governed Speed, 330 Peak HP (Max) Includes #2 Bell Housing

Includes

:GAUGE, AIR CLEANER RESTRICTION Air Cleaner Mounted

:CRUISE CONTROL Electronic; Controls Integral to Steering Wheel

:WET TYPE CYLINDER SLEEVES

:ENGINE SHUTDOWN Electric, Key Operated

:GOVERNOR Road Speed, Electronic

:ENGINE OIL DRAIN PLUG Magnetic

:OIL FILTER, ENGINE Spin-On Type

:DAMPER, CRANKSHAFT Viscous

:FAN Optimized Position

:ENGINE OIL CHANGE SYSTEM 26 quart Capacity

:FUEL FILTER Engine Mounted

FAN DRIVE {Horton Drivemaster} Automatic On/Off Type Control, With Normally Closed Temperature Control; Use With International I6 Engine

Includes

:FAN Nylon

RADIATOR Cross Flow, Series System; 940 Sq in Aluminum Core with Internal Water to Oil Transmission Cooler and 1025 Sq in Charge Air Cooler

Includes

:ANTI-FREEZE Shell Rotella Extended Life Coolant -40F (-40C)

:DEAERATION SYSTEM with Polypropylene Tank

:RADIATOR HOSES Premium, Rubber

AIR CLEANER Single Element

ENGINE CONTROL, REMOTE MOUNTED Provision for; Includes Wiring for Body Builder Installation of PTO Controls; With Ignition Switch Control

THROTTLE, HAND CONTROL Engine Speed Control; Electronic, Stationary,

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Variable Speed; Mounted on Steering Wheel

WATER FILTER Heavy Duty; Extended Life Coolant Filter Can, for International Engines

ENGINE WATER COOLER {Sen-Dure} Auxiliary, For Use With Fire Trucks

TRANSMISSION, AUTOMATIC {Allison EVS3500_P} Wide Ratio, 5-Speed; Includes Oil Level Sensor, With Provision for PTO, Less Retarder

Includes

:TRANSMISSION OIL PAN Magnet in Oil Pan

TRANSFER CASE (Meritor T-4210 2) 2 Spd, 10000 lb-ft Total Capacity, with Provision for PTO, with Electric Over Air Control

TRANSMISSION SHIFT CONTROL (Allison) T-Bar Type; for Allison MD & HD Transmissions

TRANSFER CASE LUBE (EmGard 50W) Synthetic; 1 thru 14.99 Pints

TRANSMISSION OIL (Castro TranSynd) Synthetic; 29 thru 42 Pints

ALLISON WT SPARE INPUT/OUTPUT for Fire Truck/Emergency Vehicles

AXLE, REAR, SINGLE {Meritor RS-23-180} Single Reduction 23,000-lb Capacity with 200 Wheel Ends: Gear Ratio: 5.38

Includes

:REAR AXLE DRAIN PLUG (1) Magnetic

SUSPENSION, RR, SPRING, SINGLE Vari-Rate; 31,000-lb Capacity, Includes 4500-lb Capacity Multileaf Auxiliary

FUEL TANK Top Draw; D Style, Steel, 50 U.S. Gal., 189 L Capacity, 16" Deep, With Quick Connect Outlet, Mounted Right Side, Under Cab

Includes

:FUEL LINES Nylon Tubing With O-Ring Snap-On Quick-Connect Fittings at Both Ends

CAB Conventional Steel; 5-Man Crew Cab

Includes

:CLEARANCE/MARKER LIGHTS (5) Flush Mounted

:ARM REST (2) Molded Plastic, Smoke Gray; One Each Door

:FLOOR COVERING Rubber, Black

:COAT HOOK Located on Rear Wall, Centered Above Rear Window

:GRAB HANDLE, CAB INTERIOR (4) Front and Rear of "B" Pillar, Two Each Side

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

:STEP (4) Two Steps Per Door

:GLASS, ALL WINDOWS Tinted

GAUGE CLUSER English With English Electronic Speedometer

Includes

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

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:WARNING SYSTEM Low Fuel, Low Oil Pressure, High Engine Coolant Temp, and Low Battery Voltage

(Visual and Audible)

:GAUGE CLUSER GAUGES (6) Engine Oil Pressure (Electronic), Water Temperature (Electronic), Fuel

(Electronic), Tachometer (Electronic), Voltmeter, Washer Fluid Level

GAUGE, OIL TEMP, ALLISON TRAN

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

SEAT, DRIVER {M.O. Bostrom Sierra Air 140} Air Suspension, High Back, Vinyl with Covered Back and International on Headrest

Includes

:SEAT BELT 3-Point, Lap and Shoulder Belt Type

SEAT, PASSENGER {H.O. Bostrom Tanker 450} for SCBA; non-Suspension, High Back, Vinyl, 7-Degree Back Angle, With Covered Back and International on Headrest, With Adjusters

Includes

:SEAT BELT 3-Point, Lap and Shoulder Belt Type

SEAT, REAR BENCH {H.O. Bostrom Tanker 400Ct} for SCBA; Three Individual Seats on One Riser, Non Suspension, High Back, Vinyl, With Covered Back and International on Head Rest

Includes

:SEAT BELT (3) 2-Point Lap Belts

GRAB HANDLE (2) Towel Bar Type Anti-Slip Rubber Inserts, for Cab Entry Mounted Left and Right

GRAB HANDLE, ADDITIONAL (2) Chrome; Towel Bar Type With Anti-Slip Rubber Inserts; Mounted Left and Right Side on Exterior, Rear of Rear Doors, With Crew Cab

MIRRORS (2) {Lang Mekra} Styled; Rectangular, 7.09 x 15.75, Brackets Breakaway Type, With 102 Wide Spacing, With Integral Convex Both Sides, With All Heated Heads, Thermostatically Controlled, With Bright Finish Head and Brackets

INSTRUMENT PANEL Center Section, Flat Panel

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

Includes

:REFRIGERANT Hydrofluorocarbon HFC-134A

:FRESH AIR FILTER

:HEATER HOSES Premium

Fresh Air Filter for HVAC

STORAGE POCKET, DOOR (1) Molded Plastic, Smoke Gray, Full-Length; Mounted on Passenger Door

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CAB INTERIOR TRIM Delux; for Crew Cab

Includes

- :CONSOLE, OVERHEAD Molded Plastic with Dual Storage Pockets and Retainer Nets and CB Radio Pocket; Smoke Gray with Black Netting Over Storage Pockets
- :”A” PILLAR COVER Molded Plastic, Smoke Gray
- :HEADLINER Printed Cloth
- :INSTRUMENT PANEL TRIM Molded Plastic, Drawbridge Gray with Black Center Section, Hidden Cup Holder and Ash Tray (Pull-Out)
- :DOME LIGHT, CAB Rectangular, Center Mounted, Integral to Console Door Activated, Timed Theater Dimming
- :SUN VISOR (2) Padded Vinyl Integral to Console with Toll Ticket Strap and with Integral Extenders
- :STORAGE POCKET, DOOR (1) Molded Plastic, Smoke Gray, Full-Length; Driver's Door
- :CAB INTERIOR TRIM PANELS Molded Plastic, Full-Height; All Exposed Interior Sheet Metal is Covered
- :DOOR TRIM PANELS (2) Molded Plastic; Driver and Passenger Doors

CAB REAR SUSPENSION Air Bag Type

WHEELS, FRONT DISC; 22.5” Painted Steel, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 8.25 DC Rims, With Steel Hubs

Includes

:WHEEL SEALS, FRONT Oil Lubricated, Includes Wheel Bearings

WHEELS, REAR DUAL, DISC; 22.5” Painted Steel, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, metric Mount, 8.25 DC Rims; With Steel Hubs.

Includes

:WHEEL SEALS, REAR Oil Lubricated, Includes Wheel Bearing

(2) TIRE, FRONT 11R22.5 G328 (GOODYEAR 496 rev/mile, load range G, 14 ply

(4) TIRE, REAR 11R22.5 G328 RTD (GOODYEAR) 496 rev/mile, load range G, 14 ply

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CHASSIS ADDITIONS AND MODIFICATIONS

One (1)
CC-39-2000

BUMPER EXTENSION

The chassis front bumper is to be extended forward approximately 12". The area between the bumper and the front of the chassis grille is to be reinforced and covered on the top and both sides with aluminum treadplate material. Aluminum fabrications are to be completely bolted in place and removable.

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.

The hosewell shall be capable of holding 100 ft. of 1-3/4" hose.

One (1)
CC-50-0115

CHASSIS STEP OVERLAY

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

One (1)
CC-50-0116

CHASSIS STEP OVERLAY COMPARTMENTS

Step under the driver's side cab entrance door shall be provided with fully enclosed, storage compartment designed as large as possible and constructed of the same material as the runningboards. The step surface of the compartment shall have slip resistant overlay material installed. A vertically hinged door with stainless steel D-handle latch shall be provided for each compartment.

One (1)
CC-50-0510

STEP TYPE FUEL TANK

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

One (1)
CC-51-1100

HORIZONTAL CHASSIS EXHAUST

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

Four (4)
CC-60-2000

SCBA BRACKETS IN CAB

There shall be an SCBA bracket with collision restraint strap mounted in each chassis seating position as specified by the Fire Department.

1,250 GPM Pumper

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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-00-0420

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)
DD-01-1000

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 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.

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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)
DD-04-0080

VPO/VPOS OILLESS PRIMING SYSTEM

A Waterous VPO/VPOS oilless priming system shall be supplied with the pump.

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)
DD-04-2100

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

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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. Impeller hubs must be "Flame Plated", impregnated with tungsten carbide to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped.

One (1)
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-04-7220

CLASS ONE GOVERNOR

Class 1, pressure governor for electronic engines shall be furnished and installed on the apparatus. The system shall include an alpha/numeric display to show pump pressure and engine RPM. The control panel shall include a RPM/PSI mode switch, an on/off power switch, increase and decrease switches for throttle control, a preset switch to select preset pressure or RPM, and an idle switch to return to idle. The pressure governor shall be connected to the electronic engine and maintain the specified preset discharge pump pressure or a preset engine speed.

The device will be furnished, installed and tested by the apparatus body builder.

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

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.

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One (1)
DH-20-1200

ALTITUDE REQUIREMENTS

The apparatus shall be designed to meet the specified rating at 4500 feet altitude.

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-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-02-5600

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.

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

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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)
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-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.

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One (1)
FA-01-0010

GALVANIZED PLUMBING

All rigid piping five-inch diameter or less shall be galvanized 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 passenger's side pump panel.

Two (2)
FA-01-1001

MANUAL VALVE

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

One (1)
FA-01-2000

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)
FA-01-2001

MANUAL VALVE

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

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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 2-1/2" 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

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.

One (1)
FB-02-2500

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)
FB-02-2502

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)
FB-02-2505

MANUAL DRAIN VALVE

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

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One (1)
FB-30-5700

LIFT OFF MONITOR, DIRECT TRUCK MOUNT AND DUAL INLET GROUND STAND

There shall be a lift off style monitor and direct truck mount adapter furnished and installed on a three-inch deluge pipe. The monitor shall be capable of 360-degree rotation, and be capable of flowing 1250 GPM when installed on the direct truck mount. The lift off monitor shall have heavy-duty dual lock pins when installed on the direct truck mount or the portable ground stand. The portable ground stand shall have two (2) 2-1/2" NST female swivel inlet connections. Each inlet connection shall have an automatic check valve. The portable ground stand shall have folding legs, a built in safety chain and spanner wrench.

One (1)
FB-30-7100

STREAM SHAPER AND STACKED TIPS

There shall be an Akron model 3488 stream shaper with a set of Akron model 2499 stacked tips. Stacked tips to have 2-1/2" NST thread with 2", 1-3/4", 1-1/2", 1-3/8" removable tips.

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.

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One (1)
FC-31-6500

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 under the passenger's side crew door.

One (1)
FC-31-6501

MANUAL VALVE

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

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.

One (1)
FC-31-7200

ROLLER ASSEMBLY FOR BOOSTER REEL

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

One (1)
FC-31-8000

BOOSTER HOSE

Fifty (50) 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.

One (1)
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.

A total of 150 ft. 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;

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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.

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 following discharges:

Both 1-1/2" crosslays
Front 1-1/2" bumper discharge
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-03-0500

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.

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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)
FH-03-6000

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 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-01-3000

BOOSTER TANK

A 1000-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-01-1600

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-02-0500

TOP MOUNTED OPERATOR'S CONTROL PANEL

All pump discharge controls are to be mounted above the fire pump at a top mounted operator's control panel to provide around-the-truck visibility.

Access to the top mounted control panel shall be provided from both sides of the truck with a large full width walkway ahead of the control panel.

Access handrails shall be 1-1/4" in diameter extruded aluminum with rubber inserts and chrome plated end brackets shall be provided and installed on each side, for easy access to the walkway.

The valve control levers shall be located on the lower portion and directly adjacent to one another and mounted in line so that they are in the same position when closed. Each valve control lever shall be connected directly to its respective valve by a "direct linkage" control system.

All of the controls shall be clearly identified with, color-coded, permanently engraved plate type identification labels.

A full control panel width polished light hood with a minimum of three (3) Weldon model 2025 light assemblies shall be provided to illuminate the entire top mount pump operator's control console.

Additional polished light hoods with a minimum of two (2) Weldon model 2025 light assemblies shall be provided to illuminate the right and left side pump panels. Lights shall be controlled by the operator's panel light switch.

There shall be four rubber shock mounted lights furnished in the lower forward facing panel to illuminate the walkway.

GAUGE AND VALVE CONTROL PANELS

Engine gauges and master pump gauges shall be mounted on the upper incline plane of the gauge and valve control panel. Both the upper gauge panel and lower valve control panel to be full width and completely removable for access to the pump compartment. The valve controls and individual pressure gauges to be located on the lower flat surface of the valve control panel. All valves and control handles shall have removable escutcheons for easy valve service without removing the entire panel. All manually operated valve handles shall have twist to lock style controls.

One (1)
FK-02-2400

PUMP PANEL PUMP ENGAGEMENT LIGHTS

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

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One (1)
FK-02-2600

PUMP PANELS

The top mount pump operator's control console shall be constructed entirely of aluminum, and be coated with black thermo-plastic material.

One (1)
FK-02-3600

RIGHT AND LEFT SIDE PANEL MATERIAL

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-02-4100

PUMP COMPARTMENT SIDE ACCESS DOORS

The side pump panels shall be provided with a full panel width vertically hinged access doors located in the upper portion of the side panel. The doors 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-02-6300

PUMP COMPARTMENT ACCESS DOOR

A full width removable access panel constructed of .125 aluminum treadplate material is to be provided at the front of the pump compartment. The access panel is to be flush mounted in the forward wall of the pump compartment. The door shall have a bent "D"-ring type handle with dual locking pins on each side.

One (1)
FK-02-6300

PUMP COMPARTMENT ACCESS DOOR

A full width removable access panel constructed of .125 aluminum treadplate material is to be provided at the front of the pump compartment. The access panel is to be flush mounted in the forward wall of the pump compartment. The door shall have a bent "D"-ring type handle with dual locking pins on each side.

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

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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-10-3100

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

One (1)
FK-10-3300

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

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,

1,250 GPM Pumper

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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 fire department shall provide hosebed requirements 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.

One (1)
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.

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.

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.

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One (1)
HD-00-1300

LADDER MOUNTINGS

The ladders shall be mounted in a compartment, beside the water tank and below the hosebed, 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.

The ladder storage compartment shall be located on the passenger's side of the apparatus.

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-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)
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.

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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.

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-02-0500

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 reparability 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 galvanneal steel to prevent corrosion.

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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)
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-03-0070

SIDE BODY COMPARTMENT ROLL-UP DOOR CONSTRUCTION

Exterior side equipment compartments so specified shall be equipped with roll-up shutter doors to be installed as specified herein.

The drum assembly shall be fully enclosed and protected from the elements. Pendent plates supporting the door roll assembly shall be bolted in place, adjustable and capable of being removed with common hand tools. Pendent plates and supports that are welded in place do not meet the maintenance and service criteria of these specifications.

One (1)
KK-03-0071

NATURAL FINISH ROLL UP DOORS

The roll-up doors on each side of the apparatus body shall be natural finish aluminum.

One (1)
KK-03-0080

ROLL UP DOORS

R.O.M. Robinson brand extruded aluminum shutter style doors with lift bar latch mechanisms and associated hardware shall be provided and installed as specified.

One (1)
KK-03-0099

DRIVER SIDE

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

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One (1)
KK-03-6200

DRIVER SIDE COMPARTMENTS

Three body compartments shall be furnished as follows:

- One compartment ahead of the rear wheels with full height roll-up door.
- One compartment above rear wheels with roll-up door.
- One compartment behind the rear wheels with full height roll-up 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-04-6200

PASSENGER SIDE COMPARTMENTS

Three body compartments shall be furnished as follows:

- One compartment ahead of the rear wheels with full height roll-up door.
- One compartment above rear wheels with roll-up door.
- One compartment behind the rear wheels with full height roll-up door.

One (1)
KK-50-0645

REAR BODY CONFIGURATION

Rear apparatus body compartments shall be as follows:

- There shall be one lower compartment with roll-up door.

The compartment to be transverse with the lower portions of the side compartments.

One (1)
KK-50-4200

FLAT BACK BODY

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

Four (4)
KM-49-1602

ALUMINUM UNISTRUT CHANNEL

Extruded aluminum unistrut channel shall be installed in the following compartments for future addition of adjustable shelves.

Front compartments on both sides
Compartments over the rear wheels on both sides

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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 provided on the driver's side.

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 provided on the passenger's side.

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.

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

One (1)
KR-04-0010

POLISHED COMPARTMENT TOP WELDS:

The compartment top welds to be polished.

One (1)
KR-04-3000

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

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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.

Three (3)
KS-01-1800

CAST ALUMINUM STEPS

Three (3) NFPA approved cast aluminum steps shall be provided and mounted at the rear of the body on the driver'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.

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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.

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.

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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-00-6300

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.

Seven (7)
NA-01-1010

COMPARTMENT LIGHTING

All side and rear exterior equipment compartments shall be provided with one (1) clear compartment light mounted to the side walls of the compartment. 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-02-5100

BATTERY DISCONNECT SWITCH

A master battery on/off switch shall be furnished by the chassis manufacturer 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)
NB-02-7710

12-VOLT BATTERY CHARGER RECEPTACLE

There shall be a 12-volt receptacle furnished on the apparatus to accommodate an in station twelve-volt battery charger. The receptacle shall be a male recessed type and have a matching female plug. The recessed male receptacle shall be wired to the battery system.

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One (1)
NB-02-9200

ELECTRICAL CONSOLE WITH EMERGENCY LIGHT SWITCH PANEL

An electrical console shall be constructed of .125" smooth aluminum material and mounted in the cab of the truck chassis. Console shall be designed and installed between the driver and passenger seats. The top face of the console shall be designed as the switch panel for all emergency light switches. The switch panel shall be hinged for easy access to the switch connections.

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.

A rocker style 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-10-6100

UNDER CAB LIGHTING

There shall be four (4) 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)
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.

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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)
NB-30-1200

DRIVER SIDE SCENE LIGHT

There shall be a Weldon Model 2010, 12-volt 50-watt Scenelight provided and mounted on the driver side of the body. Light shall be mounted on an 18-degree downward angled, polished aluminum casting. The light shall be wired through a switch in the chassis cab and be labeled "Driver's Side Scene Light".

Scene light shall be located above the pump panel on the driver's side.

One (1)
NB-30-1300

PASSENGER SIDE SCENE LIGHT

There shall be a Weldon Model 2010, 12-volt 50-watt Scenelight provided and mounted on the passenger side of the body. Light shall be mounted on an 18-degree downward angled, polished aluminum casting. The light shall be wired through a switch in the chassis cab and be labeled "Passenger's Side Scene Light".

Scene light shall be located above the pump panel on the passenger's side.

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-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-03-5100

SPEAKER

DYNAMAX, 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)
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-04-4000

LIGHT BAR

One (1) Code 3 model 556A2 56" mounted on chassis cab roof to meet the NFPA upper zone A lighting requirement. Light bar to have the following equipment

- (2) 50-watt standard rotators
- (2) 3-step cascade mirrors
- (1) 50-watt fast rotator
- (2) 2-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-05-1210

UPPER ZONE "B, C, D" LIGHT MOUNTING

The upper rear lights designated for Upper Zone "B" shall be mounted on the upper outside corners of the apparatus body, one on each side.

One (1)
NE-05-3400

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)
NE-05-4600

ZONE B & D SIDE LIGHTS

There shall be three (3) 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, one light mounted as far to the rear as possible, and one light mounted between the front and rear lights. The halogen lights shall be connected to a flasher and be activated through the master emergency light switch located on the electrical console.

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One (1)
NE-05-8400

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)
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.

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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-01-0010

NATURAL FINISH ROLL UP DOORS

The roll-up doors on each side of the apparatus body shall be a natural finish aluminum.

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.

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

One (1)
PA-01-4500

PAINT BODY TO MATCH CHASSIS

The apparatus body to be painted to match the chassis.

The color to be white.

One (1)
PA-02-5000

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 straight across the apparatus body.

The stripe shall be red 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.

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.

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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 POLES

One (1)
VA-02-5000

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

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) lengths of 6" 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.

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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 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

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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.